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Designing decision making processes for data trusts: lessons from three pilots

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Involve (*www.involve.org.uk*) was founded in 2003 to create a new focus for thinking and action on the links between new forms of participation and existing democratic institutions. It promotes and practices participatory and deliberative decision-making to give people more power over the decisions that affect their lives. It aims to build a stronger democracy that works for everyone – that gives people real power to bring about change in their lives, communities and beyond. Involve has run a number of projects on public engagement in data.

Disclaimer

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1. Executive summary

Why a data trust's decision-making process matters

Data trusts are a tool for delivering the potentially great benefits of data sharing, while protecting rights and balancing interests in data use. They provide one form of trustworthy data stewardship: through formalised decision-making processes, a trust makes independent, binding determinations about how data may and may not be used.

A trust's role can be powerful, especially when data are highly valued and potential uses are controversial. It may need to trade off competing interests, coordinate diverse parties, act as honest broker, protect rights and enforce obligations, set technical standards and ensure compliance with relevant law and regulation.

A trust's decision-making process is:

> "*the set of policies, procedures and practices by which a data trust promotes the beneficial use of data and manages risks, balancing stakeholders' interests in accordance with the purposes and values of the trust*."

Data trusts may be most valuable when there are many data providers, many potential use cases, and different views about how data should be used. In that scenario, how the trust makes decisions is crucial to its legitimacy and consent. The goal of this report is to provide guidance on how trusts might go about designing their decision-making processes – what factors to take into account and some of the options that may be available.

Design questions

Our analysis is based on three pilot trusts initiated by the ODI, working with partners.[1] In considering decision-making processes for these pilots, we addressed five questions:

- What decisions does the trust need to make?
- What objectives and values should govern those decisions?
- Who are the stakeholders in the trust and what are their incentives?
- What policies, processes and activities will the trust use to make and enforce its decisions?
- What accountability mechanisms will the trust use to demonstrate trustworthiness, protect stakeholders' interests and manage risks?

Our analysis suggests that there are limits to how standardised and repeatable trusts' decision-making processes can be. The answers to these questions will be bespoke to each trust. But our analysis of the ODI's pilots has identified some general considerations.

A common set of decisions

The decisions most trusts are likely to need to make can be grouped into the four stages of their lifecycle:[2]

- **Scope**: definition of the trust's purpose and values
- **Co-design**: definition of the trust's proposition – what data will be shared, from whom, for what uses, and on what terms; how benefits will be distributed and risks managed

[1] For more information on the pilots, see the Food Waste, Illegal Wildlife and GLA/Greenwich pilot reports
[2] For more information on a trust's lifecycle, see the ODI's report on these pilots

- **Operate**: decisions about the trust's governance structure, approach to stakeholder engagement, technical policy, enforcement and compliance processes, and resources
- **Evaluate**: decisions about how performance will be assessed and disclosed, how changes to rules and practices will be considered, when and how the trust will close down

The decision-making process relating to each stage should be captured in a set of governing documents and policies that establish stakeholders' rights and obligations, and ensure transparency in the trust's activities.

The need for a solid foundation

Decision-making processes need a solid foundation: an agreed purpose, common understanding of a problem to be addressed, agreement that a trust is the right vehicle to solve it, and a commitment to shared ethical values. The purpose of any data trust needs to be resolved, with careful, deliberative input from stakeholders, together with an assessment of the resourcing required to set up and run it, to ensure benefits outweigh costs.

Ambiguity at this stage can jeopardise stakeholders' support for the trust and consent to its authority. There is a risk, that to some extent all the pilots faced, of putting technical development ahead of rigorous definition of purpose and need.

The public have high expectations of a data trust. They need to see a clear purpose and benefit from data sharing, particularly since confusion, distrust and uncertainty on this topic is widespread and pervasive.

The trade-off between rights and discretion

A trust's decision-making process must be both *accountable* and *effective*. These can be in tension. Accountability requires inclusivity, responsiveness and transparency, while effectiveness depends on speed, efficiency and scalability of decision-making.

When a trust is formed, stakeholders may seek to protect their interests through establishing enforceable rights and guarantees; for example, many of the data providers interviewed for these pilots wanted to be able to control precisely the uses to which their data could be put.

However, uses of data cannot always be predicted, and it may not be feasible or desirable to establish consensus or even majority support for every use case. In deciding how data are made available, a trust needs discretion to adjudicate between different stakeholders' interests and especially to protect the interests of smaller or less powerful stakeholders.

The balance between stakeholders' rights and the trust's discretion needs to be resolved carefully, with dialogue. In general, the larger the number of stakeholders, and the less aligned their incentives, the more important the discretion and accountability of the trust becomes.

The value of a deliberative approach

Deliberation – a participant-led approach to problem solving and decision-making – can play a crucial role in ensuring accountability.

Deliberative tools and techniques provide means of understanding different stakeholders' perspectives, demonstrating honesty, competence and reliability, and

ensuring that all relevant interests are identified and taken into account.

Three requirements must be met, in order for a process to be truly deliberative:

- Discussion between participants
- Involvement of a range of people
- A clear task or purpose

Deliberation is best used for decisions that:

- Require ownership of the outcomes by stakeholders
- Need to demonstrate or benefit from taking account of a wider range of views, values, insights and experiences
- Are contentious or involve trade-offs which benefit from greater understanding of what is driving those issues

Time and resources

A data trust is not a 'quick fix' to complex governance issues. Developing the right decision-making process requires resources, commitment and time.

With respect to the three pilots, we recommend further detailed work with stakeholders to refine their purposes, develop a set of governing values, and progress detailed co-design work.

2. About this report

Purpose

This report provides recommendations on the design of decision-making processes for data trusts, based on lessons learned from three pilots conducted by the Open Data Institute.

The purpose is to provide advice to organisations setting up, or considering setting up, a data trust; and to inform the wider policy debate on data trusts as a form of data access and governance. Some points may be relevant to governance of data sharing arrangements more generally.

Each trust is likely to need its own decision-making process, designed to meet the needs of its particular stakeholders in its particular context. The trust's purpose and values provide the basis for decisions about which interests to prioritise and which rights take precedence. Therefore, the design of a data trust's decision-making process is highly dependent on its purpose and values.

Further work and stakeholder input would be needed to finalise the purpose and values of all three of the pilot trusts considered in this project. Our report therefore does not specify a detailed decision-making process for the pilots. Instead it focuses on how a decision-making process should be designed – options to consider and factors to take into account.

We have sought to identify a wide range of possible decisions and decision-making techniques for data trusts. Not all of them will be relevant to all trusts, and many trusts may be able to operate in a more slimmed-down way.

The three pilots

Greater London Authority (GLA)/Royal Borough of Greenwich

This pilot explored two use cases:

- Mobility use case (parking) – This use case was to trial technology that increases available data on parking in the Borough in relation to coach parking and spaces that are reserved for electric vehicles and electric vehicle car clubs, with the aim being making less-polluting transport options more attractive
- Energy use case – This use case was to improve the energy efficiency of a council-owned social housing block through installing sensors to monitor and control the activity of a retrofitted communal heating system.

Illegal wildlife trade

This report focuses on one of two use cases considered by the illegal wildlife pilot.[3] Wildlife image and shipping invoice data can be used to train recognition algorithms with the potential to help border control officers identify illegal animals and animal products using services on their smartphones. Images sourced from researchers, NGOs and others involved in conservation activities around the world are a potential source of training data for these algorithms.

This pilot considered whether a data trust could provide a legal and technical infrastructure for the identification, collection, assurance and storage of data, and the sharing of data with relevant organisations.

[3] Regarding the second case, the pilot identified that the immediate opportunity lies in free hosting of open data by cloud hosting providers, and it is unclear at this stage whether a trust would offer additional value, so we have not considered it in detail in this report

Food waste

Food manufacturers and retailers play an important role in addressing food waste. Consistent measurement of food waste requires negotiation and coordination between numerous stakeholders with different processes and definitions.

A number of food waste data sharing initiatives already exist in the UK. This pilot explored whether a data trust could support global food waste reduction efforts by improving the ability of stakeholders to track and measure food waste within supply chains.

The pilot concluded that there may be value in a data trust but whether the benefits would outweigh the costs and risks was unclear, based on the currently available evidence. We have sought to identify lessons for any potential trust operating in this area.

Method

In preparing this report, we:

- Reviewed selected relevant literature
- Analysed the transcripts of the stakeholder interviews carried out for each pilot
- Developed decision maps, as a general framework (see section 5), and supported service mapping for the GLA pilot
- Assessed potential decision-making tools, with a focus on deliberative techniques
- Tested recommendations with the Open Data Institute (ODI) and its pilot partners.

Structure of the report

The next section provides an introduction to data trusts and our approach to designing a decision-making process for them.

Section 4 explores the factors driving the success of a trust's decision-making process, specifically *accountability* and *effectiveness*. We suggest criteria for evaluating a decision-making process.

Section 5 describes four sets of decisions most trusts need to make, linked to the data trust lifecycle described in the ODI's report on the pilots.

Section 6 provides an overview of the deliberative techniques trusts may use to support decision-making, and assesses the benefits of a deliberative approach.

The report concludes with a summary of recommendations.

Note on terminology

When we refer to a data trust in this report, we refer either to the legal entity that comprises the trust (if one exists) or otherwise to the organisations or individuals who take decisions in the trust's name.

The concept of a 'decision-making process' is closely related to governance. However, 'data governance' has wider meanings, for example "everything designed to inform the extent of confidence in data management, data use and the technologies derived from it."[4] On the other hand, 'governance' is also used more narrowly, to refer to an organisation's board and other formal decision-making institutions.

We therefore use 'decision-making process', rather than governance, specifically to mean "the set of policies, procedures and practices by which a data trust promotes the beneficial use of data and manages risks, balancing stakeholders' interests in accordance with the purposes and values of the trust."

[4] British Academy and the Royal Society, *Data management and use: Governance in the 21st century*, June 2017

3. Designing a decision-making process for data trusts

What is a data trust?

The use and stewardship of data raise some of the most vexed issues in the development and deployment of digital technologies. There are risks, to privacy and security, safety and fairness. But an equal concern is that beneficial innovation may be held back by a failure to address both real and perceived risks, and thereby promote safe, secure and trustworthy access to data for social and economic benefit.

The ODI has defined a data trust as 'a legal structure that provides independent third-party stewardship of data.'[5] Data trustees take on binding responsibilities to ensure that data is shared and used for the benefit of identified beneficiaries and other stakeholders.

Data trusts may be thought of as intermediaries between data subjects, data providers and potential data users. They support coordination between these diverse participants, including by setting and enforcing terms on which data may be made available for new uses. In doing so, the trust establishes clear expectations on all parties and gives participants confidence that their interests will be protected.

There are many possible approaches to data governance. For example, Nesta has identified 14 models, just pertaining to personal data.[6]

Data trusts are a particular form of governance in which data providers cede at least some control of data to the trust, which then makes binding decisions about its use taking all relevant stakeholder interests into account.

Facilitating data sharing

To succeed, a data trust must enable and encourage data providers to share data, promote its availability to potential users, and monitor and mitigate the risk of harmful use.

These pilots highlighted potential barriers to data sharing including:[7]

- Lack of evidence of the business case for sharing data
- Misaligned incentives between data providers/subjects and data users
- Time and resources needed to make data available, and/or use it
- Confusion and uncertainty about data ownership, rights and control
- Data standardisation and quality
- Reputational risk and mistrust

A data trust may not be able to overcome these barriers. But it can provide infrastructure – policies, processes and practices – that helps: for example, by bringing parties together, defining a shared purpose, providing a framework and standard protocols for collaboration, establishing and protecting stakeholders' rights, providing redress mechanisms, defining and enforcing standards and offering resources and expertise (technical, legal and so on).

> *"[A trust] might be a useful mechanism, like a container or a structure for voluntary agreements within different sectors. Whether it would materially*

[5] ODI, *Defining a 'data trust'*, 19 October 2018
[6] Mulgan, G. and Straub, V., *The new ecosystem of trust: How data trusts, collaboratives and coops can help govern data for the maximum public benefit*, Nesta, 21 February 2019
[7] See also the ODI's full report on this pilot project

change the outcomes I don't know but it could facilitate the process of setting things up" Stakeholder, Food Waste pilot

Design questions

The British Academy and Royal Society's report[8] on data governance identifies four principles of data governance:

- Protect individual and collective rights and interests
- Ensure that trade-offs affected by data management and data use are made transparently, accountably and inclusively
- Seek out good practices and learn from success and failure
- Enhance existing democratic governance

Designing a decision-making process that meets these principles involves answering five sets of questions:

- What **decisions** does the trust need to make? For example, on what terms will data access be enabled – to whom, for what purposes? What data will be made available, and from whom? What forms of data combination will be permitted? What security arrangements will they put in place and how will those differ for different kinds of data?
- What **objectives** should govern these decisions? In particular, what benefits should the trust prioritise? Whose rights must be protected, and what are those rights?
- Who are the **stakeholders** in the trust, what are their motivations, and which of their interests may be promoted or jeopardised by the trust's decisions? This includes data subjects, including individuals who may not themselves have been the source of data, such as friends, family and other community members; and may include third parties who do not directly engage with the trust but may still be affected by its decisions
- What **policies, processes and activities** will the trust need to achieve its purpose and adhere to its values? How will they ensure all relevant stakeholders' perspectives are represented and considered? Who will be involved in making trade-offs, and how?
- What **accountability mechanisms** will the trust use to demonstrate trustworthiness, protect stakeholders' interests and manage risks? What will it disclose, publicly and to particular stakeholders? How will the trust ensure data use complies with wider legal, administrative and democratic obligations? How will the trust resolve disputes and address complaints, and what redress will be available? What role might there be for independent validation and/or arbitration in the decision-making process?

The answers to these questions are likely to be specific to each trust, and dependent on context: the sensitivity of the data involved, its potential uses and value, the nature and number of the trust's stakeholders, and so on. As with the legal analysis conducted for these pilots, it is not possible to recommend any single form of decision-making process or even a set of templates from which would-be trusts could choose.

However, there does appear to be a standard set of decisions that a trust is likely to need to make. This is considered further in section 5. Before that, the next section discusses factors for a successful decision-making process.

[8] British Academy & Royal Society, *supra* note 4

4. Consent, accountability and effectiveness

A consent-based model

Data trusts' intermediary role is crucial and often challenging. By definition, different stakeholders in a trust are likely to have different incentives – otherwise there would be no need for a trust, a data-sharing agreement would suffice. Data communities are often fragmented, with stakeholders who may know little about each other's needs, and have varying levels of data expertise. As GovLab put it, with respect to use of private data for policy-making:

> *"The process of establishing data collaboratives and leveraging privately held data…is onerous, generally one-off, not informed by best practices or any shared knowledge base, and prone to dissolution when the champions involved move on to other functions"*[9]

In the absence of a legal or regulatory framework that compels participation, data trusts depend on consent; not (just) the consent of data subjects required by data protection law, but a broader 'consent of the governed' that provides the basis for a trust's decision-making authority. Existing food waste data sharing arrangements operated by WRAP, for example, rely on the voluntary participation of manufacturers and retailers, which in turn is based on their confidence that WRAP will hold it securely and ensure that commercially sensitive information is not made available.

Consent has two preconditions:

- Stakeholders – particularly data providers and data users – must support the **purpose** of the trust, and see it as an appropriate use of the data under the trust's stewardship
- Stakeholders must also see the trust as **legitimate**, that is having the competence and moral authority to decide how data may be used.

Meeting these conditions obliges trusts to identify and align with the interests of the stakeholders affected by its activities. This can be achieved in two ways:[10] majority/ consensus decision-making, in which parties individually or in sufficient number have the power to allow or veto specific actions; or accountability mechanisms, in which the trust decides, but consults, considers and informs before doing so.

Majority/consensus decision-making

Some of the data providers interviewed for these pilots anticipated a consensus (or at least majority-voting) process, in which providers would in effect have veto rights, for example over who could access a trust, for which purposes, on what terms.

There are certainly circumstances in which majority decision-making[11] is viable. Where there are relatively few parties to a data sharing arrangement, and their interests and values are relatively homogenous, wide or universal agreement may be desirable and achievable. Or, particularly sensitive decisions may require majority or consensus support.

For example, the Articles of Association of the TeX contract club, described in the Food Waste pilot report, require that proposed

[9] GovLab, *Data stewards: data leadership to address 21st century challenges*, 12 June 2018
[10] Assuming that there are no shared commercial goals to align incentives
[11] 'Majority' includes consensual decision-making in this section

changes are approved by a majority of voting members in each affected stakeholder group.

But in complex situations with diverse stakeholders, majority decision-making has flaws. Participants with the greatest power, strongest incentive or best information are likely to dominate. In this situation, some socially harmful uses may be allowed while socially valuable uses may be blocked.

Majority decision-making within trusts may also conflict with other democratic or legal requirements. Take the GLA pilot as an example: a majority decision-making process may result in outcomes that clash with the priorities of the local authority or undermine residents' rights. Although mitigations could be built into the trust's rules to prevent this, this merely reframes the governance challenge: who decides when other factors should prevail over a majority within the trust?

Finally, as trusts scale, and new purposes, uses, users and data sources emerge, the need to achieve majority approval can lead to complexity and ossification. Governance of data trusts needs to be dynamic, to adapt to changing conditions, exploit new opportunities or address newly identified risks.

New and emerging technologies may have potential to achieve consensus and build trust. This may reduce the inefficiency of majority decision-making, but it is unclear that it addresses the other problems described here (see Figure 1). New technological possibilities reframe the governance challenge, but don't remove it: who decides the rules of the decision-making process, and how those rules are embedded in technical solutions, remain crucial questions.

Figure 1 Can data trusts use 'distributed trust'?[12]

Emerging technologies may provide new ways of building trust in data, ensuring trustworthiness of providers and users, enforcing terms of data use and disincentivising rule-breaking, without the need for a central authority. For example, smart contracts, which allow data sharing and use contracts to be completed and verified via a distributed ledger, could be used both to incentivise participants to pursue the trust's goal of safe data use and provide transparency and enforcement functions.[13] Auditing techniques can help demonstrate that only uses consistent with the trust's purposes and rules have been allowed.[14]

However, platforms based on distributed trust still need governance, for example to establish the criteria for which technical solutions optimise, and to establish sanctions for breaches. Indeed, the design of blockchain governance is turning out to be as complex and multidimensional as for any other institution. For example, voting does not become inherently less problematic as a decision-making mechanism on blockchains,[15] and may even be worse in some respects.[16]

Finally, as the General Legal Report on these pilots points out, technological solutions are still subject to data protection and other law, and governance structures will be required to ensure compliance and establish liability.

[12] Botsman, R., Who Can You Trust?: How Technology Brought Us Together and Why It Might Drive Us Apart, Cambridge, MA: Perseus Books, 2017
[13] Dixon, C., *Crypto Tokens: A Breakthrough in Open Network Design*, 1 June 2017
[14] Bennett, E., *Legal trust + technical trust = data trusts*, 4 January 2019
[15] Buterin, V., *Governance, Part 2: Plutocracy Is Still Bad*, 28 March 2018
[16] Daian, P., Kell, T., Miers, I. and Juels, A., *On-Chain Vote Buying and the Rise of Dark DAOs*, Hacking, Distributed, 2 July 2018

Accountability mechanisms

For these reasons, we think, trusts are likely to need other kinds of accountability mechanisms, that ensure trusts are responsive to different stakeholders' interests while retaining their discretion to make trade-offs between them. That means data providers will need to cede a degree of control. This may be seen as implicit in the name 'data trust', since the legal concept of 'entrustment' involves at least partial delegation of responsibility for decision-making in the trustor's interests.

However, in a legal trust the trustee typically has discretion only within a set of parameters defined by the trustor. This model does not read across to data trusts, which have to balance a number of competing interests, in which providers' wishes may not be decisive.[17] This is a harder task, with more discretion balanced by more complex systems of accountability.

> "*How you go about setting the red lines is really hard...you're trying to increase sharing, by taking away a lot of the onerous component of dealing with [sharing] requests and how you say yes or no to people. But in doing so, you're trying to develop quite general criteria that can fit different situations. Whenever there's some grey, you need someone who knows enough about the data and enough about the purpose to make the call*"
> Stakeholder, Illegal Wildlife pilot

This is not a new challenge. For example, trust ports, independent statutory bodies which self-administer over 100 ports in the UK, operate with a similar model. They are guided by the interests of the diverse stakeholders in the port's use and sustainability. Much depends on the integrity, conscientiousness and competence of the port's independent boards:

> "*There are bound to be conflicts of interest from time to time between — and in some cases within — the various stakeholder groups. It is the duty of the [port's] boards, at all times, to strike a balance that respects the interests of all stakeholders, not just one group, in the light of the objectives of the port, including commercial considerations, and what constitutes the 'common good' for all stakeholders (current and future) and the port itself... Trust ports should always deal with stakeholders in an accountable manner although the board has ultimate responsibility for any decisions taken*"[18]

'Bottom-up' trusts, proposed by Delacroix and Lawrence, are likely to face similar issues.[19] These are trusts to which data subjects transfer or cede control of data, for specified purposes, which are "bound by a fiduciary obligation of undivided loyalty." But in practice even subjects who have voluntarily provided data are likely to have interests that diverge from each other's in practice; there will be disputes about whether particular uses are aligned with the trust's purpose; and there may be external costs or benefits that the trust should respond to. Fiduciary obligations do not necessarily make the decision-making process simpler (as well as creating legal ambiguity, see General Legal Report).

Data trusts dealing with citizen-generated, personal or sensitive data face the additional challenge of complying with data protection

[17] This is similar to the finding in the legal analysis that legal trusts are unlikely to be appropriate structures for data trusts
[18] Transport Scotland, *Modern Trust Ports for Scotland: guidance for good governance*, 2012
[19] Delacroix, S., and Lawrence, N.D., *Disturbing the 'one size fits all' approach to data governance: bottom-up data trusts*, October 2018

law and regulation as well as meeting citizens' expectations regarding public benefit and the need to demonstrate trustworthiness.

The components of legitimacy

The right to make the call – the trust's 'social licence to operate'[20] – must be earned, not assumed. When legitimacy breaks down, and consent is lost, the potential benefits of data sharing may be at risk. Nesta highlights[21] the case of inBloom, a $100m US education data sharing initiative which despite laudable aims failed to achieve sufficient buy-in from stakeholders, and closed after barely a year. The consequent backlash resulted in greater regulation of student data privacy.[22]

How data trusts make decisions is crucial to legitimacy. They will be expected to adhere to principles of good governance, including transparency, responsibility, accountability, participation and responsiveness.[23]

> "*Provide me with peace of mind by being trustworthy and sharing it with the right people*" Citizen workshop participant

As noted above, trusts are likely to face power imbalances, with some stakeholders having stronger incentives, better information or more resources than others. A particularly important role for trusts is to recognise and adjust to these imbalances. Their rules and practices should ensure smaller and less powerful organisations have a voice and are taken into account.

Deliberative methods (described in section 6) come to their fore in openly and actively exploring these issues. The outcomes of deliberation enable decision makers to take a more informed decision which takes account of differing views.

The distinctive features of data trusts make them well suited to deliberative decision-making:[24] diverse participants, reliance on consent, and potential unforeseen benefits and harms of data use, including for stakeholders who are not direct parties to the trust. The delicate balancing of rights involved in trusts' decision-making requires a nuanced understanding of stakeholders' interests, and mechanisms to ensure that those interests are respected by the trust in practice.

Data trusts must, as O'Hara puts it, "help align trust and trustworthiness, so that we trust all and only trustworthy actors."[25] But they must also demonstrate trustworthiness themselves, which requires stakeholders to be able to assess their honesty, competence and reliability. Deliberative processes give stakeholders a chance to make this assessment at first hand, in part overcoming the challenges of remoteness and insufficient evidence that often undermine judgements of trustworthiness;[26] the more representative of the participant base, the more representative the outcomes of deliberative processes.

Engagement is not just about communication; providing information on the benefits of data sharing is necessary but not sufficient to demonstrate accountability.

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[20] O'Hara, K., *Data trusts: ethics, architecture and governance for trustworthy data stewardship*, February 2019
[21] Mulgan and Straub, *supra* note 6
[22] Bulger, M., McCormick, P., and Pitcan, M., *The legacy of inBloom*, Data & Society, 2 February 2017
[23] UN Commission of Human Rights, *Resolution on the role of good governance in the promotion of human rights*, 6 April 2000
[24] Patel, R., *Public deliberation could help address AI's legitimacy problem in 2019*, Ada Lovelace Institute, 8 February 2019
[25] O'Hara, *supra* note 20
[26] O'Neill, O., *Can more accountability increase trust?*, Lecture at the British Academy, 28 June 2016

Balancing accountability and effectiveness

The *outcomes* of decision-making also matter to legitimacy and the licence to operate. A data trust may be transparent and accountable, and engage widely and sincerely, but if it is not competent to do its job – for example, if data under its stewardship is not held safely and securely – it will still fail.

Accountability mechanisms can have unintended consequences that make it harder for organisations to act quickly and effectively. They can bog organisations down in policy and procedure; they may be susceptible to being gamed; they impose transaction costs on participants; they may not scale, or be capable of evolving as the trust grows. There is also a risk of 'democracy theatre', if an organisation attempts to use engagement to win support, or the appearance of support, for a decision it has already made.

A trust's legitimacy therefore relies on striking a balance between *accountability* and *effectiveness*. Too many rules and stakeholders with vetoes, and nothing gets done. On the other hand, too much autonomy risks distrust and neglect of stakeholders' interests. Effective engagement and deliberation preserve a trust's autonomy while ensuring it is embedded in its wider social context and responsive to all its stakeholders' demands. We discuss this further in section 6.

Factors for a successful decision-making process

We have suggested in this section that: trusts rely on consent; consent requires not only that stakeholders support the trust's purposes, but also see it as legitimate; legitimacy in turn depends on accountability and effectiveness, and on the balance between them.

Components of accountability include:

- Inclusivity – does the decision-making process allow all stakeholders' interests to be represented?
- Responsiveness – does the decision-making process compel the trust to take stakeholders' interests into account?
- Transparency – is it visible to stakeholders how their interests have been addressed and balanced with other objectives?

Components of effectiveness include:

- Speed – can the trust make timely decisions, including allowing quick responses to risks?
- Efficiency – is the cost of running the trust proportionate to the benefits?
- Scalability – is the decision-making process sustainable as the volume of data and number of uses grow?

We suggest these components provide the starting point of a framework for evaluating a trust's decision-making process.

5. The decisions to be made

Components

Although every trust will be to some extent bespoke, we think it is possible to identify a standard set of decisions most trusts will need to make, and some general observations about how they should be made.

Decisions can be grouped according to their place in a trust's lifecycle:[27] scoping, co-design, operation and evaluation.

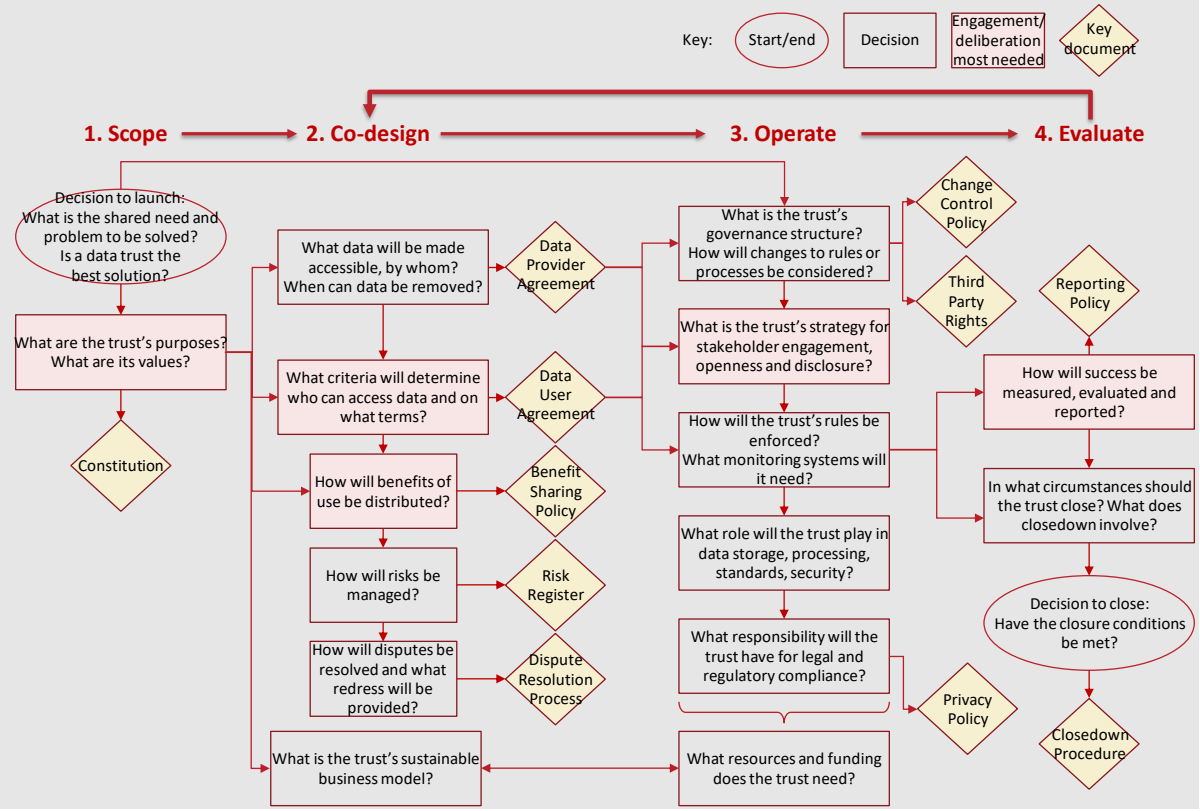
Figure 2 provides a schematic overview of the key decisions that must be made regarding each stage, and the documents in which the answers may be captured. In principle, each phase requires answers to the questions in the prior phases – although in practice the design work is likely to be iterative.

Not all trusts will need to make all these decisions. A formative trust should look at the decisions shown in Figure 2 (and listed in more detail in Annex 1. nnex 1), decide which are relevant, how important they are, and based on this prioritise particular aspects of the design process.

1. Scope

A data trust is founded on a clear statement of purpose and values. These should be captured in a governing document, constitution or articles of association. They rely on a common understanding between the trust's instigators of a problem that can be addressed by data sharing, and a shared view that a data trust is the right vehicle.

Figure 2 Common components of the decision-making process for a data trust



[27] This analysis was prepared as an early input to the ODI's wider project, and differs slightly from the framework in the ODI's final report

The purpose statement - the trust's 'North Star' - needs to consider and as far as possible reconcile the different interests of all the trust's stakeholders. So decisions about scope should be made in a way that exposes, rather than submerges, differences which may result in conflict further down the road.

Alongside the purpose statement, we suggest a trust should define a set of values that underpin its policies and guide decisions. While values will to some extent be bespoke to each trust, they are likely to include:

- integrity (acting to fulfil the purposes of the trust and in the interests of all stakeholders; not unduly influenced by any party or by trustees' own interests)
- objectivity (decisions based on merit and evidence)
- openness (accessible by all stakeholders, open about decisions and their reasons for decisions, with relevant information disclosed in a timely way)
- equity (a fair balance of risk and reward between stakeholders)
- respect for rights (ensuring individuals' and organisations' rights are protected, including by guarding against misuse of data)

Many ethical frameworks have been developed to help guide the development of data-driven technologies.[28] It is beyond the scope of this report to consider their applicability to data trusts in detail. The key point is that without effective and accountable decision-making processes, ethics risk being empty slogans. Values are an essential part of a trust's underpinning foundation, but it is the superstructure of practices, policies and processes which give them practical force. Equally, values can be undermined if stakeholders believe they are not truly embedded in how the trust works.

For example, details of the Royal Free NHS Trust's relationship with DeepMind sparked controversy despite the protections in the data sharing agreement[29] and DeepMind's much vaunted 'ethics and society principles'.[30] An independent audit of the revised agreement (following the Information Commissioner's Office's finding of non-compliance with data protection law) was not immediately sufficient to quell stakeholders' concerns.[31]

Systematic analysis of stakeholders' perspectives, importance and support will be essential to the trust's development of its purpose and values. Stakeholder mapping helps identify priorities.[32] Mapping needs to consider stakeholders who are affected by the use of data, not just parties to the trust.

Further stakeholder input would be needed to finalise the purpose of all three of the pilot trusts considered in this project – revealing the potential complexity and time required to make Scope decisions.

However, the context in the three pilots was very different: the illegal wildlife trade pilot found general enthusiasm for the concept of a data trust but less consensus about its specific purpose. Potential data providers are heterogeneous and potentially numerous, so a working group of core partners could be

[28] Floridi, L. et al, *AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations*, Minds and Machines, December 2018
[29] New Scientist, *Revealed: Google AI has access to huge haul of NHS patient data*, 29 April 2016
[30] DeepMind, *Ethics & Society Principles*
[31] Techcrunch, *Audit of NHS Trust's app project with DeepMind raises more questions than it answers*, 13 June 2018
[32] ODI, *Stakeholder Analysis*

established to engage more widely to define a unifying purpose.

In the food waste case it was unclear whether incentives were sufficiently aligned for further data sharing, beyond the initiatives already in place by WRAP and others; an opportunity to share sales data was identified, although stakeholders recognised this data was highly commercially sensitive.

In the GLA pilot, we would suggest that the senior decision-makers define an overarching purpose, and test it with stakeholders, including the public. Deliberation will be important to build consensus, expose and work through differences in an open way – the use of an independent third party facilitator may help to level power imbalances and enable open dialogue.

2. Co-design

The co-design stage determines what the trust will do – its offer to data users and re-users, and its terms of use. Key outputs of this phase include agreements detailing the rights and obligations of data providers and data users; a policy on the distribution of benefits; a risk register, describing the trust's strategy for identifying and mitigating risk; and a method for resolving disputes once the trust is operational.

As the name suggests, this stage also requires close engagement and collaborative work with stakeholders. A discovery phase is likely to be needed, to investigate:

- the type and quality of the available data (data holders do not always know what they've got or who owns it; and, as the illegal wildlife pilot found, mis-labelling and a lack of consistent definitions can lead to significant complexity and inaccuracy)
- users' incentives.

Incentivising data provision and use

A trust is unlikely to be able to transform stakeholders' incentives, but it may be able to align them, for example by:

- Providing benefits to providers in return for data (such as access to more data, or benchmarking of their data relative to peer group organisations, as with current food waste data sharing initiatives)
- Establishing means of sharing commercial value created by data use
- Imposing legally enforceable sanctions for breaches of the rules
- Defining different levels of data access for different types of user (open access, open-to-approved user classes, access-with-permission, invite-only)
- Implementing or requiring providers to implement privacy-enhancing technologies to prevent unnecessary or unwanted processing of personal data, without loss of functionality, including by anonymising data (although interviewees pointed out that it may be impossible to fully anonymise some data, and as noted in the GLA case, the value of data may lie precisely in the ability to link different datasets to the same individual or source)
- Aggregating data (although some pointed out that may limit the uses to which data can be put)

A data use policy, developed deliberatively with input from stakeholders, should specify the criteria by which data use and access decisions will be made. Engagement should include the public in the case of personal data or data that could have significant public impacts. The scale of deliberative effort depends on the value of data and the magnitude of any risks.

For example, the GLA pilot addressed the potential value of citizen generated data, such

as movement data. The greatest value may lie in personalized movement data, but this may not be deemed acceptable for wider use. Indeed in the workshop held with public participants whilst some benefit was seen in sharing mobility data there were concerns about tracking and surveillance. Deidentified movement data may be more acceptable but likely of less value both for public and commercial use.

There may be different proposition options. The value of different options needs to be assessed, both financial and non-financial, over time. The size and distribution of quantitative benefits may need to be modelled under different scenarios.

The data provider agreement needs to give sufficient reassurance to providers that they will commit to making data available, on an ongoing basis, without them having to approve every use (see, for example, providers' fears about unintended uses in both the illegal wildlife and food waste pilots). Providers will look for robust risk management processes and means for them to escalate concerns.

The data provider agreement should also specify terms on which data providers can withdraw their data from the trust. Providers may prefer a simple exit-with-notice right, but where this has significant knock-on effects on users or other providers, the trust needs to consider a more balanced approach. Ideas suggested in the interviews include:

- A process to determine whether the provider has valid reason to withdraw, as defined in the provider agreement
- Agreement of a majority of other providers or affected users
- Establishing an independent arbitration process
- Preventing providers who have left from rejoining within a certain time period.

Balancing benefit and risk

Fear, misplaced concerns or over-reaction to risks can lead to underuse of data technologies.[33] Trusts need techniques to make a balanced assessment of the benefit and risk of data use, and to establish processes and technical solutions that capture benefit while mitigating risk.

For example, researchers developed a decision tree for assessing the risks and benefits of publishing biodiversity data.[34] The decision tree provides a risk management protocol that takes data holders through a structured process and prescribes actions for different types of risk.

A risk register could be established to identify and assess risk, and capture mitigation actions, with regular review by the trust's board.

When risks cannot easily be foreseen, the trust should focus on establishing effective monitoring systems. Technical solutions may be available; one interviewee suggested that a condition of data access is that the trust creates an automated log that shows how data is being used, which can be monitored by trustees or the wider data community, subject to privacy considerations.

Distribution of value

Concern about commercial use of data loomed large in the interviews for these pilots; either a general view that the data in question should be reserved for not-for-profit use, or a concern that value would be captured by

[33] Floridi et al, *supra* note 28

[34] Tulloch, A.I.T. et al, *A decision tree for assessing the risks and benefits of publishing biodiversity data*, Nature, July 2018

commercial organisations and not flow back to data holders.

This is echoed by fears expressed by some that opening access to public datasets could result in value being transferred from the public sector to the private sector. For example, a number of witnesses to the House of Lords Select Committee on AI were critical of public-private data deals which, they believed, allowed data to flow from the public sector to the private sector without securing proper value for the taxpayer.[35]

Careful deliberative work will be needed to understand and respond to stakeholder views on this issue. Previous work with citizens has shown that the public do not necessarily reject commercial involvement out of hand as long as there is a clear wider interest demonstrated.[36]

Discussions with citizens for the GLA pilot found a resistance to data being shared for commercial use beyond the purpose of the data trust.

> *"Don't sell it to anyone...not the highest bidder...but for improving things"* Citizen workshop participant

These concerns need to be balanced by a recognition that market signals are often the best way of identifying valuable uses of data. It would be odd and self-defeating in many cases for trusts to rule out commercial uses entirely and as a matter of principle.

Instead, we suggest that trusts should have a policy on distribution of value. This should be informed by market testing and economic impact assessment, which should seek to identify potential commercial applications and provide an order-of-magnitude assessment of value. This work will need to take into account the value of data in combination with other datasets, as well as stand-alone; and recognise that some benefits will emerge unpredictably over time, requiring the policy to adapt to new sources of value.

There is no normative 'right answer' to the distribution of value. Most often, the right answer is what can be negotiated. However, the trust has a particular role in (i) defending the interests of parties who cannot negotiate effectively, because they are too dispersed (e.g. the public) or lack sufficient information about the other parties' incentives; and (ii) ensuring that social and non-financial benefits are taken into account.

The trust also needs to decide how it will be funded: from fees charged to data users, by its creators, from philanthropic or public funds, or from commercial value created by opening up data. These options need to be tested with stakeholders.[37]

Independent mediation

The parties forming the trust may have a direct interest in the outcomes of the co-design stage, and/or may not yet have secured the trust of all stakeholders. For this reason, many formative partnerships use an independent third party as 'honest broker', to manage the negotiation process, prepare key agreement documents, and work towards an equitable and sustainable outcome. For example, Southampton University drafted the legal data sharing agreement between corporations and start-ups that underpins the Data Pitch innovation programme.

[35] House of Lords Select Committee on Artificial Intelligence, *AI in the UK: ready, willing and able?*, §77, April 2018
[36] Research Councils UK/Involve, *Public dialogue review: Lessons from public dialogues conducted by the RCUK*, July 2012
[37] Whether the trust can be a for-profit entity is a separate question, see section 2 of the General Legal Report

Similarly, in developing the TeX contract club, the Tax Incentivised Savings Association (TISA) employed law firm Pinsent Masons to manage stakeholder engagement, co-design policies and processes that aligned different interests, ensure no one group was able to dominate the decision-making process, and shepherd negotiations of the club's rules to a conclusion.[38]

3. Operate

Figure 2 identifies the types of operational decisions that need to be made, namely: governance and stakeholder engagement; technical policy; enforcement and compliance. We discuss each in turn.

Governance and stakeholder engagement

As discussed in section 4, governance arrangements must strike a balance between discretion (for the trust) and certainty (for stakeholders); and between effectiveness and accountability.

Some data sharing frameworks provide very little discretion to the data steward, such as the Administrative Data Research Network, which enables access to research data only under closely specified conditions and processes. These approaches may be less relevant to data trusts that are dealing with less predictable and more diverse use cases and sources of data.

In the illegal wildlife case, for example, a data trust is likely to have significant discretion, given the fragmentation and diversity of the data provider community. So governance mechanisms are needed to allow providers to see and influence the trust's decisions, without introducing cumbersome approval processes.

Key questions to be addressed in governance design are:

- Who should be represented?
- In what forums and processes?
- With what rights?
- What level of openness and transparency?

Interviewees for the pilots were clear that their consent depended on them being confident that the trust's decision-makers understood their community's concerns:

> *"A governance structure that is mostly made of people who actually understand the needs of their community is probably better…my vision has always been for an organisation that's purpose-driven by its own community"* Stakeholder, Illegal Wildlife pilot

As discussed in the General Legal Report on these pilots, independent governance – in the sense of dispersed power – is crucial, particularly where:

- stakeholders have varying degrees of capacity to participate, risking power imbalances and under-representation
- the risk of conflict is high.

Some interviewees suggested Advisory Groups, with a formal mandate and responsibilities, to allow the board to consult different stakeholder communities, as an alternative to bringing them into the decision-making body itself. These could be organised by stakeholder, geography or use type.[39] For example, in the food waste context, WRAP has working groups for different industry sectors.

Advisory Groups work well where stakeholder communities are relatively small or homogenous. Where they are not – for example, if stakeholders include the general

[38] See Food Waste pilot report
[39] See Section 6 of the General Legal Report for further discussion of advisory groups

public – broader consultation and deliberation is likely to be required, as discussed in section 6.

The board may be empowered to delegate some tasks to a committee or oversight group with independent members. These might take on tasks that are particularly sensitive, such as resolving disputes or adjudicating on data uses; or that require specialist technical or legal knowledge; or in which independence is particularly important, such as evaluating impact.

Trusts must also decide what level of transparency and disclosure is appropriate. Transparency does not itself build trust – indeed it may undermine it, if it can be exploited by bad actors.[40] On the other hand, transparency helps demonstrate integrity and honesty, communicate goals and show benefits.

Trusts need to consider transparency of what, for what purpose, and how they will proactively communicate to stakeholders, and under-represented groups in particular. Areas in which to consider disclosure include:

- What classes of data are held
- How decisions about data access are made, and who is making them
- How data has been used
- How risks are being managed (although not in sufficient detail to allow exploitation)
- What the outcomes of the data trust's activities have been
- How any value created by data use has been shared, and what policies have governed commercial use of the data
- How to complain, and how complaints have been handled.

Technical policy

Data providers and users interviewed for these pilots almost universally anticipated a technical role for the trust. Both the food waste and illegal wildlife stakeholders emphasised the potential for inconsistencies and/or low quality data to undermine the trust's value. More generally, as noted in this project's General Technical Report, technology choices both constrain what data can be used for and may provide governance solutions (for example, enabling the risk of data misuse to be managed and mitigated).

Decisions include:

- How and where should data be stored?
- What gatekeeping, authentication and authorisation systems should be deployed to enforce the trust's data access and use rules?
- What technical standards, formats, security and interoperability requirements should apply to data and metadata (if any)?
- How are the quality, accuracy and security of data assured?
- To what extent and how should data be categorised, anonymised, aggregated, and combined with other data?
- How does the trust check for error, bias and discrimination in data?

There was no consensus about the answer to these questions, nor how they should be answered. Several interviewees urged against designing "overwrought" solutions that require the trust to predetermine data uses and required quality standards. Some warned that the trust may lack credibility in making technical decisions.

> *"We would let the user decide what the data tells them. We give them the data and they can define what metrics they*

[40] O'Neill, O., A Question of Trust: The BBC Reith Lectures 2002, Cambridge: CUP, 2002

want to use" Stakeholder, Illegal Wildlife pilot

Others expected the trust to play a bigger technical role, especially where:

- the data is complex or technically specialist
- the range of uses is large or unknown
- the quality of data is uncertain
- the number of providers is large
- an honest broker is needed to resolve disputes between stakeholders about technical issues

Many were concerned about loss of control of data and the potential for shared data to 'escape' or be copied. Security was seen as essential to trust, and a challenge.

> "*We are really strict on data security, over time [stakeholders] have come to trust us on that because we've been doing this a long time...data security was seen as much more of an issue [in a neighbouring sector] because we hadn't built the reputation there"* Stakeholder, Food Waste pilot

An alternative approach would be for a trust to provide a data oversight function, rather than storage and processing. Its role might be to verify the data held by providers, for example by carrying out data audits, or requiring them to self-certify, or some mixture of both.

In either case, a technical audit is likely to be needed to understand the quality of the available data, consider the case for harmonisation, assess potential for use tracking, consider appropriate authentication and security measures, and so on.

But, not too early. There is a risk of putting the technical cart before the governance horse. For example, the focus in both the GLA pilot and the interviews for the illegal wildlife pilot was often on considerations of data gathering, quality, storage and security, rather than the purpose of data sharing. This risks developing technical solutions to a problem that is not sufficiently clearly specified, or where stakeholders' interests are not fully understood.

The extent of the trust's direct responsibility for data will have implications for its legal structure (see General Legal Report). As a rule of thumb, the greater a data trust's level of responsibility (and potential liability), the more likely it will be that an entity with its own legal personality (in the UK, likely some form of corporate entity) will be the appropriate structure.

Enforcement and compliance

Once the trust's rules are established, the trust must decide what role it plays in enforcing them. This role may be reactive (reliant on notifications of alleged infringement by participants or third parties) or proactive (monitoring for it).

Where a particular trust sits on this spectrum depends on:

- where liability sits (in general, the greater the liability trusts or data providers are exposed to, the more proactive they are likely to need to be in monitoring compliance). A key question is how many links in the data use chain can go wrong, and the ability of one participant to have implications for others' liability; for example if a user undermines subjects' privacy rights, what liability if any is borne by the data provider or the trust itself? The General Legal Report considers these questions in more detail
- the technical feasibility of monitoring. Can tools be used to track data use without infringing users' legal rights or creating excessive disincentives for use?

- the magnitude of the potential harms from misuse
- the capacity of different stakeholders to identify and flag misuse
- which jurisdiction the trust operates in.

Resources and funding

Assessing resource requirements is highly context-specific. For the three pilots considered for this project, interviewees variously recommended the following functions and skills:

- 'Data steward' - a mixture of technical, management and stakeholder skills. (It was not clear whether this was genuinely distinctive from a general management function, although we note that GovLab is undertaking a project to define data stewardship as a corporate function with specific associated responsibilities)[41]
- 'Account managers' (in one interviewee's experience, every ten partners require one account manager, although this will clearly vary from case to case)
- Technical expertise
- Sector expertise, for example to inform decisions about data uses (this could be in-house or via advisory groups)
- Operations.

It appears that most interviewees considered that a trust would be a fairly traditional organisation, with premises, in-house staff and so on, albeit with a strong emphasis on operating as lightly and cost-effectively as possible.

The trust's costs could be significant, and need to be proportionate to the benefits. For example, in the illegal wildlife pilot, the trust might take quite a significant and potentially costly role in ensuring data quality.

Cost-benefit analysis and an assessment of funding options will therefore be needed in this phase.

4. Evaluate and retire

Performance assessment and reporting

As noted above, a trust is likely to need to regularly disclose its activities and outcomes with reference to its purposes and impacts – akin to annual reporting by companies or charities.

Evaluation may require periodic assessment, not only of financial aspects of performance, but also more complex and subjective questions, such as whether the trust is adequately delivering its purposes, has effective processes for promoting beneficial use and mitigating harm, is appropriately assessing its non-financial impacts, is achieving an equitable balance between the needs of different stakeholders, and so on.

For example, trust ports are encouraged to report performance on financial measures, value added, labour productivity, profitability of land holdings, channel depth management and berth utilisation to provide a rounded picture of impact – while also recognising not all benefits can be quantified: "The improvement and modernisation of [a port's] assets, services and infrastructure for the benefit of its users cannot always be valued in this way."[42]

Frameworks have been developed for assessing value against non-financial metrics and purposes.[43] For example the BBC and Ofcom each have an elaborate set of metrics

[41] GovLab, *supra* note 9
[42] Transport Scotland, *supra* note 18
[43] Kelly, G., Mulgan, G. and Muers, S., *Creating public value: An analytical framework for public service reform*, 2002

to help them assess whether the BBC is fulfilling its statutory purposes.[44]

However, few data trusts are likely to have the resources and measurement capability to assess performance in such a rigorous way.

Evaluation should therefore be nuanced, and potentially complex, but also proportionate. Metrics need to be chosen carefully to avoid over-simplification and distorted incentives. For example, assessing a trust's effectiveness solely by measuring how many complaints are resolved quickly would be highly problematic.

Independent evaluation is preferable, and might include internal and external stakeholder interviews, public research (including deliberative approaches), and stress-tests of trust processes and policies.

Change control

Trusts need processes for changing their rules. The more unpredictable their context – new uses, unforeseen risks, heterogenous provider and user groups – the more important the change control process is.

The change control policy comprises:

- a mechanism for proposing a change – either by a stakeholder or by the trust, at its own discretion, or in response to a stakeholder complaint
- circumstances in which proposals may be considered ('change triggers')
- a process for assessing whether the change triggers have been met
- a process to assess the merits of the proposal, including mechanisms for consulting stakeholders
- a process for the trust to make a decision, including any consultation on that decision, and/or any right or obligation on the trust to refer it to an independent committee or arbitrator.

The change control process may be one of the trust's most important and sensitive policies. For example, in the case of the TeX contract club mentioned above, elaborate rules and processes were put in place to govern changes to policies and activities.[45] The change control process is designed to ensure that changes can neither be forced through nor blocked by any single stakeholder.

Closedown

Closedown is a rather fundamental question of evaluation, which can be easy to overlook in the formation phase. A trust should include in its governing documents a statement of:

- the circumstances in which the trust will be wound up
- who will decide when those circumstances are met, and how
- what happens as a result, including to providers' data, the services using that data, and third parties who may be benefiting from (or harmed by) those uses
- how any assets (or obligations) held by the trust are to be distributed (or discharged)

The closedown policy will need to be the subject of discussion with stakeholders in the formation phase.

[44] BBC, *Annual Plan 2018/19*; Ofcom, *Holding the BBC to account for delivering for audiences: The BBC's performance*, October 2017

[45] TISA Exchange Ltd, *Articles of Association*, §5

6. Engagement and deliberation

What is deliberation?

Deliberation is a participant-led approach to problem solving and public decision-making. It allows participants to make decisions or recommendations based on consideration of relevant information, and the collaborative discussion of issues and options. Participants, depending on the situation, may include stakeholders, the public, either in their role as stakeholders (for example in a community issue) or as "mini publics" recruited to represent the views of the wider public (for example regarding city developments or national policy), or experts/specialists.

The key aspect is that the participants' own input forms the basis of the results and findings (this forms part of the legitimacy of deliberative decision-making).

Whilst a collaborative and deliberative approach to decision-making has benefits, clearly not all decisions can (or should) be made deliberatively. However, there are some key points in the life cycle of a data trust that warrant a deliberative approach to build insight, value and trustworthiness into the data trust's operation, practices and decisions.

There are **three requirements** which must be involved in order for a process to be truly deliberative:

1. Discussion between participants at interactive meetings or events
    - These meetings, which may be supplemented by the use of online technologies, are designed to provide time and space for learning new information and discussing the significance of this knowledge (when considering existing attitudes, values and experience)
    - The results of these discussions are *considered*; the results themselves may or may not be different from the original views of some/all of the participants, but they will have been arrived at through collective discussion and consideration.
2. Working with a range of people and information sources
    - The information within a deliberative project (some of which may have been specifically requested by participants) contributes to a clear context and the consideration of various factors within decision-making
    - The participants themselves represent a diversity of perspectives and interests. Deliberative discussions can be managed to ensure that these perspectives and interests – even if they represent a minority – are included within a balanced discussion.
3. A clear task or purpose
    - Related to influencing a specific decision, policy, service, project or programme.

The ODI's Invitation to Tender (ITT) specified that a "key motivation behind data trusts is their potential to increase trust in the way that data is shared and used. In some cases this will involve the trust of individuals whom the data might be about or otherwise have an interest in; in others it will involve the trust of organisations that hold data." The process of deliberation is conducive to producing results that are legitimate and trustworthy.

This is especially pertinent to a topic such as data (specifically its storage and its use), which

– evident through discussions of Cambridge Analytica and Facebook, for example, as well as electoral interference – remains a source of uncertainty and public distrust. The uses and misuses of data are often widely-discussed only in the context of scandals and ongoing investigations.

Why deliberation matters

The ODI's hypothesis was that a data trust must "[engage] and [make] decisions with different stakeholders so that the decisions it makes – such as who has access to the data, under what conditions and how the benefits of that use are distributed equitably – are made openly and deliberatively." In doing so, a data trust would increase the trustworthiness of the way that data is shared and used.

As also noted in the ITT, central to building trustworthiness is ensuring that different stakeholders are engaged with as part of an inclusive, open and deliberative decision-making process.

The lessons from the pilot work support this approach – for stakeholders and the public to have trust in a data trust, it has to reflect their issues, expectations and perspective on trade-offs; build consensus; and be open, honest and accountable.

The *deliberative* element of this process is crucially important; it validates and strengthens the recommendations made, because they directly reflect the issues, hopes and concerns of the stakeholders (and the ways in which these priorities can be balanced).

> *"Give some benefit back to data givers, fully inform the public about benefits, purpose and uses…don't misuse data… allow data users to have some choices about big decisions"* Citizen workshop participant

Deliberative methods provide a wealth of data on public and stakeholder attitudes and values. They also provide opportunities to explore *why* these attitudes and values are held. One practical reason is that deliberative techniques often allow more time to be spent with the participants.[46] In addition, the use of deliberative methods can (depending on the location) help to encourage a sense of community discussion and representation.

For this reason, deliberative methods often benefit the participants themselves. The experience provides opportunities for collective discussion and reflection in depth; sharing views and developing these collaboratively, and presenting them to experts and decision-makers. These experts can help participants to learn about the key issues in question, to talk about them with (not past) each other, and to benefit from diverse points of view, discussions and ideas.

The process of undertaking deliberative methods is in itself of importance to trust and legitimacy (of the results, the process, and the data trust itself). This legitimacy is derived from the participants, and the fact that their input is the basis of subsequent decision-making.

> *"I hope they will understand the public's concerns in regards to privacy. But I hope they make sure [data] is used for good rather than bad"* Citizen workshop participant

[46] Stoker et al., *Fast thinking: Implications for democratic politics*, European Journal of Political Research, Vol. 55, No. 1, September 2015. See also Kahneman, D., Thinking, Fast and Slow. New York: Farrar, Straus and Giroux, 2011

The benefits of using a deliberative approach more generally

As noted in section 4, a data trust may derive its legitimacy – and, by extension, the trust of stakeholders and citizens – from its capacity to enable, encourage, and benefit from collective discussion, reasoning, and decision-making.

Figure 3 summarises some of the benefits of deliberative processes; benefits which are relevant to decision-makers, policy-makers, *and* participants themselves.

Figure 3 Benefits of deliberative processes

For decision- and policy-makers	For participants
Better policy and service delivery options, grounded in better knowledge of public values and priorities	A chance to influence decisions on important issues that affect their lives
Greater transparency and accountability (and thus legitimacy) for decision-making, based on greater knowledge about the acceptability (or not) of specific policy options	Insight into the subject, decision and policymaking, and about participation itself
Opportunities to listen to public discussions about contentious issues, and to gain detailed first-hand knowledge of public priorities	An enjoyable and worthwhile way of being an active citizen, and increased confidence and willingness to take part again
Greater public understanding of issues considered and, potentially, shared responsibility for successful policy and service delivery outcomes	The opportunity to meet and share views with other participants, stakeholders, technical specialists, policy makers, service providers and decision makers
Opportunities to build social cohesion by increasing understanding and mutual respect between people with diverse views, values and opinions from different sectors of society	A platform for increased understanding and mutual respect
Better relationships between government and citizens with the potential for more effective longer-term partnership	Empowerment, education and motivation of the public and service users

As argued in a recent article by Nesta, "trust has to be continually earned, and is not generic: it is trust to do particular things and at particular times."[47] The importance of trust underlines the potential of data trusts as new, accountable institutions that can manage data security and maximise the value of data. "Existing public services", as described in the aforementioned Nesta article, "will not be able to generate trust through their existing machineries, but can benefit greatly from more data sharing."

Deliberative public engagement can be used across all levels of government: local, regional, national and international. It can be used across all types of services, delivered by public, private or voluntary sectors. Moreover, it can help to inform, consult, involve or empower, alongside other forms of participation (e.g. opinion polls, written consultations, community development, campaigning or lobbying) at any point in the policy cycle.

However, the specific benefits of deliberation for stakeholders, the public (or 'a' public) – and the promises that can therefore be made to them – depends on the dynamic between decision/policy-makers and participants. It is influenced by the level of commitment to involve participants in collective decision-making by those holding the power to make the decision.

This goes beyond simply informing, for instance, and necessitates an involvement and *empowerment* of those taking part.[48] This is visualised in the International Association for Public Participation Federation's Spectrum of Public Participation (Figure 4).[49]

[47] Mulgan & Straub, *supra* note 6
[48] Arnstein, S.R., *A Ladder of Citizen Participation*, JAIP, Vol. 35, No. 4, July 1969
[49] IAP2, *Spectrum of Public Participation*, reproduced with permission

Figure 4 IAP2's spectrum of public participation

	Inform	Consult	Engage	Coproduce	Empower
Participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

When to use deliberative decision-making

Ultimately it is a judgement as to when and where a data trust uses deliberative approaches. We have indicated key points at which it would appear most useful, in this report and in the pilot-specific reports. Here we make some more general points about how to identify when deliberation is likely to be valuable.

Developing and instituting deliberative approaches, as with any other form of decision-making, has costs. These include:

- The time needed to plan and design a deliberative approach, including engaging the right stakeholders, slowing down decision-making
- Often increased direct costs compared to other more direct forms of decision-making[50]

However, it is also important to consider the other side of the argument: what the cost of *not* applying deliberative approaches would be. For example, the costs of engaging the public are often overstated and exaggerated, and, for more complex or controversial decisions, are overshadowed by the costs of 'non-engagement.'

For example, research findings from the Environment Agency on "the experience of two cities in trying to implement controlled parking schemes… found that non-engagement came with significant costs in the form of delays and conflict. Without considering the true costs of not engaging it is no wonder that engagement can seem expensive."[51]

Extending this to a data trust, the risk of not working deliberatively with the public and stakeholders and not creating a mechanism that is trusted by the public and stakeholders means that they are less likely to give permission for their data to be used or accessed, negating the potential benefits of data access.

There are multiple ways for deliberative approaches to be used. Making the wrong choice can cost time and money in failed

[50] Costs such as use of skilled practitioners to design/facilitate the process, but also in venues and any incentive payments for recruited participants

[51] Anderson, E. et al, *From fairy tale to reality: dispelling the myths around citizen engagement*, undated

implementation. Decisions which tend to benefit from a deliberative approach include those which:

- Require greater ownership of the outcomes by stakeholders
- Need to demonstrate or would benefit from taking account of wider views, values, insights and experiences
- Still have aspects that are open to formation, influence or change
- Are contentious, have underlying or real conflict and/ or involve trade-offs which benefit from a greater understanding of what is driving those issues and the underlying values
- Are at an impasse, and would benefit from wider perspectives to help break deadlock.

Decisions about which techniques will be informed by:

- The context, purpose and values of the data trust and the stakeholders involved.
- The available resources to apply to deliberative approaches.
- The willingness of decision-makers to listen to and take account of the views as a contribution to their decision making,
- The decision being open to influence and change; and
- The willingness of participants and the public to engage with the topic at hand.

Finally in choosing a particular method, part of the significance is the 'message' it sends. The method(s) used will be highly influential in the subsequent dynamic the data trust may then have with the immediate community (public/stakeholders).

As well as when to use a deliberative approach it is worth reiterating when it is damaging or ineffective. To use a deliberative approach effectively an organisation needs to:

- Be committed to using the results and clear how it will use the results, and have the authority to do so
- Be clear about what is "up for grabs" – if key decisions have already been made and there is nothing to influence, a deliberative approach will be damaging to trust.

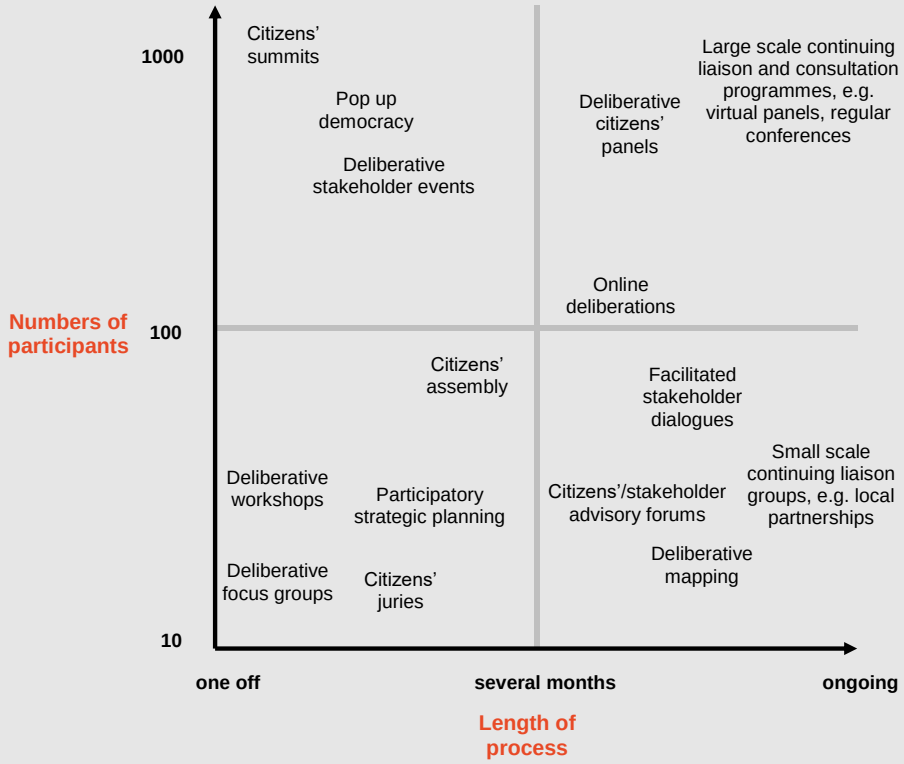
A deliberative approach exposes and asks questions – its job is to drive better decisions with the insights gained. If it is used without integrity and impact then it is likely to be more damaging to the process of building trust.

Recommended deliberative methods

There are a large number of deliberative methods which would be relevant to the data trusts under consideration. The suitability of these methods depends to a great extent on the purpose of the project and its scope (i.e. the number of citizens/groups/interests that the data trust would represent, and therefore what level of cost and energy would be reasonable within a deliberative process to design it). Figure 5 shows a number of possible deliberative methods.

The choice of deliberative method(s) is dependent on a number of factors, including the prospective number of participants, the time that could be committed to the project, the available budget and probable benefit compared to more traditional forms of engagement. It is also important to point out that a combination of methods is possible; for example, the use of face to face methods supplemented by online deliberation or a Citizens' Assembly and ongoing stakeholder or public Advisory forums.

Figure 5 Map of deliberative methods[52]



Annex 2 discusses these methods, and others, in more detail; not only in terms of their time commitments and participant numbers, but also in terms of their cost, and the strengths and challenges that they represent.

Each of the pilot reports discusses what might be suitable for their cases, but some broad conclusions would be that deliberative work at the following points will be necessary:

- At the Scope stage to align purpose and values of the trust. For example, this should involve, as a minimum, facilitated workshops with the emergent data trust's stakeholders and some initial soundings with the wider public through, for example, deliberative focus groups
- In the Co-design stage, to develop criteria or principles which the data trust will use to ensure that the decisions it makes meets the needs and expectations of wider stakeholders and the public; and to develop policy on distribution of value. As an example this might involve further facilitated stakeholder dialogue workshops combined with a citizens' assembly or deliberative stakeholder consultations with a wider group of stakeholders
- In the Evaluate stage, as a way of ensuring that the data trust continues to meet the expectations of stakeholders and the public, and is responsive to what is likely to be a rapidly changing context for data collection, synthesis, sharing and use. Advisory forums or reference panels will be useful to enable this, potentially augmented by less frequent citizens' assemblies or juries.

[52] National Consumer Council/Involve, *Deliberative public engagement: nine principles*, 2008

7. Summary of recommendations

A structured design process

We have suggested a structured approach to designing a decision-making process for a data trust, aligned to the trust lifecycle:

- Scope: agreement of the trust's purpose and values
- Co-design: development of the trust's policies on data provision, data use, and distribution of benefits, plus an approach to risk management
- Operate: design of the trust's governance structure, technical policy and enforcement mechanisms; and assessment of its funding and resource needs
- Evaluate and retire: processes for performance assessment and review, transparency, and change control. Provision should also be made for the trust's closedown, including the circumstances that should trigger closedown and a process for establishing whether those circumstances exist.

While in practice the design work will be iterative, the decisions made in each phase will depend on those made in preceding phases.

The design process may benefit from involving an 'honest broker' who can coordinate negotiations and try to find mutually acceptable solutions.

A good decision-making process

A good decision-making process must sustain stakeholders' consent, which will partly be driven by their support for the trust's purpose, and partly by its accountability and effectiveness.

The decision-making process should be designed to meet three criteria for accountability:

- Inclusivity (are all stakeholder interests represented)
- Responsiveness (are there mechanisms to ensure stakeholders' interests are taken into account?)
- Transparency (are the outcomes of the trust's decisions visible to stakeholders, and can they see how their interests have been balanced with other objectives?)

Criteria for effectiveness include:

- Speed (can the trust make timely decisions?)
- Efficiency (is the cost of operating the trust proportionate to the benefits?)
- Scalability (can the decision-making process cope, as the volume of data and number of uses grows?)

There may be trade-offs between these criteria; there is no single right answer about achieving the right balance. However, in general, we would advise against decision-making processes that involve too many veto points, which risk undermining effectiveness.

The value of deliberation

Deliberative methods can be an important accountability tool, enabling greater shared understanding of stakeholders' issues, concerns, views and values, and in particular helping resolve trade-offs.

But deliberation should not be undertaken lightly – it requires commitment, time and resource, particularly for trusts operating in sensitive or complex areas. It requires genuine desire to hear the voices of wider stakeholders and reflect that in decision making.

It is particularly important to engage stakeholders in defining the purpose, values and criteria of the trust.

Governance and technology, hand in hand

Data trusts don't solve governance complexity, although they can provide a planning structure. They are not an 'out of the box' solution. Indeed, they are likely to be most needed when there are many data providers, many potential uses (good and bad), and data are highly valued.

Data trusts are likely to play a technical role. This need not mean actually hosting and storing data; it may mean providing a technical oversight function, including data verification and auditing

Technical solutions may be available to promote trust and ensure transparency. These do not in themselves remove governance challenges, but they may support both accountability and effectiveness, including by lowering the costs of transparency and responsiveness.

Next steps

Across all three pilots, we recommend further work with stakeholders to refine the purpose of the pilot trust, draft statements of values, and progress detailed co-design work:

- GLA: definition of an overarching purpose by senior decision-makers, for deliberative testing and development with stakeholders, including the public, so that public benefit can be demonstrated
- Illegal wildlife: formation of a working group with government, law enforcement and conservation groups to define a clear problem statement, agree purpose, and map other stakeholders in a potential trust
- Food waste: exploration of the scope to extend existing data sharing arrangements into a trust format, based on an agreed common purpose, and seeking to expand the data gathered by the trust (for example to include sales data, data from adjacent sectors, or from international markets).

More generally, we recommend the ODI continues to work on data trusts from a practical perspective, refining the concept and clarifying its place amongst the growing set of data governance tools by describing what problems it may solve in particular contexts.

Annex 1. Summary of design questions

The table below represents a comprehensive set of questions that a trust's decision-making process may need to address, regarding different stages in its lifecycle. Not all trusts will need to answer all these questions. The intention is that this table provides a checklist; a formative trust should consider which of these questions are relevant, and, for those that are, how it will answer them in its particular context, including how it will engage relevant stakeholders.

Scope	
Purpose **Values**	What are the trust's aims? What problems does it address? Why is a trust needed? What values and standards will it uphold? How will changes to purpose and values be proposed and how will they be considered? In what circumstances will the trust be wound up, and who decides if they are met?
Co-design	
Data Provision **Data Use**	What data will be made available? How will the availability of data be communicated to potential users? Who can provide data, and how will they be incentivised? What criteria will determine who can access data and what uses are permissible? What are the rights and duties of the parties to the trust? How will new providers, datasets, uses or users be judged in terms of their compatibility with the trust's criteria? How and when can data be removed or disposed of? What are the enforcement mechanisms? How will the trust identify what enforcement action is needed? How will the trust promote data availability and use, and to whom?
Operate	
Technical	What role (if any) will the trust play in: gathering, storing, processing, validating, securing data? What role (if any) will the trust play in setting standards and ensuring interoperability? How will it ensure compliance with its technical rules?
Governance	What is the governance structure? How will directors be appointed? What information will directors need? Who are the trust's stakeholders and how will they be represented? What committees and advisory groups will be appointed, and how? How is the trust held to account? What external oversight will there be? How will the trust handle complaints, resolve disputes and provide redress, including to third parties? How will independence be protected and demonstrated? How will 'edge cases' be considered?

Legal	Will the trust be responsible for legal and regulatory compliance, e.g. for establishing consent? How will liability arising from the trust's activities be allocated? What is the right legal/corporate/contractual model?
Resources	What resources and skills will the trust need? How will the costs of the trust be covered, initially and as it scales? Can it make a profit? Is it an entity or a set of relationships? What staff will it need, if any? Will the trust pay any external costs (of data providers, users or third parties)? What will the trust do if its resources are inadequate to achieve its purpose, comply with its rules or regulatory/legal requirements, or mitigate risks?

Evaluate

Assessment **Reporting** **Change control** **Closedown**	What are the trust's measures of success? How will they be assessed and disclosed? How will the need for any changes be identified and assessed, in light of evaluation? How will stakeholders' views be gathered during evaluation? How will changes to the trust's rules, processes or practices be proposed and assessed? How will breaches of the trust's rules be assessed? What is the closedown procedure, and how can it be triggered?

Annex 2. Assessment of deliberative methods and techniques

Further to the general 'map' of deliberative techniques provided in the previous section, the table below provides a description of several relevant deliberative methods. It also gives an outline of their key strengths, and potential challenges in their implementation.

Method & description	Strengths	Challenges
Citizens' /stakeholder advisory forums Participants: 10-30 sitting as a committee to inform and advise decision making over an extended period of time. Cost: Low Events usually not expensive, but costs of recruiting, supporting and rewarding participants can be high. Time expense: Medium Minimum 3 months to set-up and run group. Scale of the project and the level of expertise required can affect the time required.	Participants asked to complete 'homework' between meetings and come prepared to deliberate, making the best use of their time Provides early warning of potential problems and a useful sounding board to test plans and ideas Regular meetings over extended periods give participants a chance to get to know each other, aiding discussions Citizens/stakeholders introduce a fresh perspective to discussions, encouraging innovation Citizen/stakeholder involvement increases accountability in governance due to the transparency of the process	Meetings are usually quite short which can limit deliberation Because they are often not involved it is a challenge to ensure insights reach decision-makers Long-term commitment from participants makes recruiting and retaining participants difficult Can appear exclusive to those who are not included Small number of people involved so statistically significant data not generated Participants can become less representative over time; advisory groups may need to be renewed regularly
Deliberative focus groups Participants: 6-12 per group sharing views and attitudes on a subject, with a report produced and distributed to participants. Cost: Low-medium	Works well with small groups in short amounts of time (when the topic is clearly focused and a specific output has been identified) High level of participant interaction due to the small size of the group Can lead to a greater understanding of how people think about issues	Limits on how much information can be presented and absorbed in a limited time; can impact depth of deliberation Heavily dependent on a skilled facilitator Easily dominated by one or two strong opinions Some participants may feel inhibited to speak

Method & description	Strengths	Challenges
Generally not very high unless using random selection. May include incentives, venue hire, catering, etc. Time expense: Low Usually 1-2 hrs. Time required to plan, recruit participants, write up & respond to results. May require reading in advance.	Members can be specially recruited to fit (demographic) profiles Good for getting opinions from people who would not be prepared to give written answers	Responses are not quantitative and so cannot be used to gauge wider opinion
Deliberative workshops and structured dialogues Participants: 8-12 in group discussion to explore an issue, challenge opinions and develop informed conclusion(s). Cost: Low-medium Stratified random selection can add significant costs. An incentive is sometimes offered. Additional costs include venue and catering. Must sometimes reconvene. Time expense: Variable A few hours or several days depending on topic and intended outcome.	Very flexible and versatile method, allowing for creativity in meeting the needs of the project The same workshop design can be used in a variety of locations, or with different groups Large numbers of people involved in addressing a single policy question without a large-scale event Time and resources to consider an issue in-depth Discussing with others gives participants an insight into alternative perspectives Can build relationships between participants It is a method that is rapidly acquiring increased social legitimacy and political buy-in	A representative sample of the population is important for the evidence to be generalisable Conclusions are not always clear and collective Open to manipulation: how discussions are framed; how the topic is introduced; the questions asked Involves small numbers of people and therefore can't gather statistically significant data on opinions Participants' views develop through deliberation; may mean that final views aren't representative of wider public, who haven't experienced deliberation
Facilitated stakeholder dialogues Participants: a handful of people to several hundred, defining the problem, devising	Deals well with conflict, can help address low trust Ensures a balanced approach to decision-making, allowing all voices to be heard	Extremely reliant on the skills of a facilitator or mediator; can be expensive and time consuming The need for participation by all stakeholders can slow progress or even render it impossible

Method & description	Strengths	Challenges
methods and creating solutions, mainly through workshops and similar meetings. Cost: Medium Costs can increase for expert facilitation and numerous meetings. Time expense: Medium-high Most effective over a long period of time due to the slow process of building relationships and trust between groups.	Develops jointly-owned and implemented solutions, often preventing the need for legal challenge or litigation Highly flexible and can be applied at all levels of government. Good in controversial or contested contexts; dialogue is one of the few practicable options once a conflict has reached a certain point	Challenging to ensure communication between stakeholder representatives and their constituencies A risk that organisational and individual positions may not be explicitly acknowledged May only highlight areas of agreement without other parts of the picture; problematic for campaigning organisations for which positions are important
Citizens' jury Participants: 12-24; representative of the demographic, deliberating on an issue (generally one clearly framed question). Cost: High Average: £15,000-£20,000 for two days; recruitment of jurors, venue hire/catering, facilitation, Per diem honorarium for jurors, accommodation and travel. Time expense: Low Mostly take place over two days, mainly because of time and cost constraints.	A recognised and proven method, with institutional legitimacy Can involve people who have previously not engaged with an issue Designed to deliver clear, agreed outputs, interrogating issues and experts/evidence Useful for controversial or sensitive policy issues that require careful weighing up of options Direct citizen input through extended deliberation and focused discussion Impartial, specific and objective decisions, delivered through a verdict	Usually requires participants to take in large amounts of information; can be challenging to present this in engaging ways The issue/decision can be highly specific The framing of the question, and the evaluation of the results, can be very 'top-down' High cost Small sample of citizens involved, although this should be highly representative of the demographics of the given area
Citizens' assembly	Can explore diverse perspectives on complex issues and reach consensual recommendations	Recruiting a representative group of people at this scale can be challenging and expensive

Method & description	Strengths	Challenges
Participants: 50-250 citizens deliberating an issue, or issues, of local, regional or national importance. Participants usually selected to create a 'mini-public' (broadly representative of the population). Cost: High Includes recruitment of participants, facilitation, participant expenses, planning, communication and promotion. Time expense: Medium Takes place over several weekends.	When run on a large scale they can bring a diverse array of opinions and experiences into one event Combines learning phase with deliberation; can help understand, develop and change initial views Brings decision-makers face-to-face with consumers with lived experience of the issues Can be a high profile process and provide an opportunity to draw wider attention to an issue Offers policy makers an insight on public opinion on a contested issue	Assemblies are very intensive and resource-demanding processes Running a Citizens Assembly is a highly complex process requiring significant expertise Risks being seen as a publicity exercise if not followed by real outcomes
Citizens' panel/ Community panel Participants: 500-5,000 in a representative, consultative body of local residents, taking part in a rolling programme of research and consultation. Cost: Medium Depends on the size of the Panel, the methods in which the members are consulted and frequency of consultation. Time expense: Medium Time needed to keep the Panel database up to date, recruit new participants, and to run & analyse consultations.	Can be sponsored and used by a partnership of local agencies Allows for the targeting of specific groups if large enough Allows surveys or other research to be undertaken at short notice Useful in assessing local service needs & priorities Can determine appropriateness of developments within the area Can track local sentiments over time	Needs considerable staff support to establish and maintain the panel Can exclude non-native speakers and/or certain residents who do not feel comfortable participating in this way Responses to surveys often reduce over time, particularly among young people Should not be the only form of engagement

Method & description	Strengths	Challenges
Distributed dialogue Participants: various, participating in dialogue events organised by interested parties (rather than centrally) in different areas and media (including online). Cost: Low-medium Planning and promotion; materials for workshops; communications. Depends on scope and breadth. Costs contained by local groups running their own events. Time expense: Varies Distributed dialogues take place at different times, organised by participants.	Ability to engage a large number of stakeholders and lay people in different locations Insights into concerns and aspirations in different localities around the same issues Indicates how priorities and opinions differ in different areas or between different groups Can be a cost effective way of enabling large numbers to participate, as costs and organisational tasks are decentralised Opportunities for continuous engagement integrated into the process Gives a high degree of autonomy and control to citizens	Distributed dialogues can take a long time to organise, not suitable when fast action is needed Encouraging others to run workshops can be time consuming and resource intensive The commissioning body retains little control of how discussions are framed or facilitated in practice Data collected can be inconsistent Difficult to ensure inclusiveness and transparency of local/stakeholder-led dialogues The process may produce contradictory or inconsistent data
Deliberative mapping Participants: 20-40 citizens and topic experts consider complicated issues. Can show how support for a proposed action is weighed against economic, social, ethical and scientific criteria. Cost: Medium Numerous meetings and event costs, facilitation, expenses of citizens & experts. Time expense: Medium-high	Gives consumers and experts the opportunity to learn from each other and work together Useful for understanding the differences between expert and public assessments of options Good for dealing with complicated issues where a range of different considerations must be balanced Can demonstrate values and concerns behind public preferences and acceptability of options	Can only be used with quite small groups Findings can be inconclusive if there are difficulties finding common ground The results of the process can be contradictory, leaving decision-makers without clear guidance Can be high cost, with considerable time demands on expert participants Often difficult to ensure that experts buy in to the process and engage with public as equals

Method & description	Strengths	Challenges
Requires several months for numerous meetings and workshops.	Can deliver greater legitimacy for decisions and information about public preferences towards policy options. Experts take a more active role than in many engagement processes, but are prevented from dominating	Highly specialised expertise in running this process Often ineffective in building better relationships between groups
Participatory strategic planning Participants: 5-50 in a community, coming together in explaining how they would like their community or organisation to develop over the next few years. Cost: Medium Usually two trained and experienced facilitators for two-day event. Time expense: Low A two-day event with recommended follow-up after 6 months.	Effective in involving the public in meaningful policy/action planning, particularly on complex and technical issues Brings public and expert stakeholders together A cost-effective way of enabling a diverse group to identify common ground and reach agreement Can deliver clear, realistic policy recommendations Flexible and applicable to multiple settings Works for people with auditory/visual preferences Participants often find process & outcome inspiring	The demand of reaching agreement between stakeholders can weaken the ambition of policy recommendations Requires active participation of all stakeholders throughout the whole process Often difficult to ensure that experts buy in to the process and engage with public as equals Requires trained and experienced facilitators Requires all major stakeholders to be present in the room
Online deliberations Participants: 1-500+, using software emulating face-to-face methods. Different templates allow participants to brainstorm ideas, identify issues, prioritise solutions, or comment on consultation documents. Cost: Medium	Can be a cost-effective and time-efficient alternative to face-to-face workshops An effective way of presenting complex and technical information People can participate in their own time and at their own convenience	Can be difficult or impossible to replicate the depth of deliberation in face-to-face engagement May alienate people with a lack of IT skills, people who don't/can't access or navigate the internet If not carefully planned, online consultations can generate unmanageable amounts of material

Method & description	Strengths	Challenges
Online consultation cuts costs for venues and postage. Costs include design, set up, and incentivising participation. Time expense: Medium Most exist for a few months to discuss a current event or situation.	Game design can engage participants interactively Allow large numbers of people to contribute equally Can reach people who are unlikely to respond to traditional engagement methods Anonymity can encourage open discussion Allows information gathering and giving without the constraints that group size or travel	Written communication can be a barrier for some already marginalised groups Any perceived complexity, such as registration, can be a barrier to participation
Pop up democracy Participants: 500+. Creates local participation spaces, enabling experimentation. Residents can reimagine spaces and existing power structures. Cost: Variable Depends on scope and timeframe. Using empty venues creatively can reduce costs. Costs include staff and props. Time expense: Variable As little as one day and as long as needed.	Can help reach out to people that might not otherwise participate Utilise a range of possible tools to gather people's views and ideas to tackle specific issues Can reinvigorate interest in political institutions by tailoring spaces to people's needs and interests Use spatial and cultural context of the site to build the core of the project around it, responding to specific local needs and enhancing local assets	Many installations tend to be aesthetic in nature, rather than transformational Many pop-up interventions lack a framework for measuring success Limited emphasis on collecting or disseminating data or feeding back to the community (during/after) Some projects demarcate, rather than bridge, the gap between practitioners ("creators") and participants (“receivers”)