



# Public dialogue on location data ethics

Engagement report – Appendices

**Geospatial Commission**

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# Appendix A: Method

Traverse and the Ada Lovelace Institute worked in partnership to deliver a public dialogue, alongside an additional tailored engagement programme with specifically impacted populations.

The method involved the following key elements and phases:



## Key dates and timeline

The contract for the public dialogue on location data ethics was awarded in February 2021, for completion in December 2021. A summary of key decisions and delivery is provided in Table 1.

**Table 1: Summary of key project dates**

Month	Key decisions and delivery
<b>February 2021</b>	<ul style="list-style-type: none"> <li>■ Project inception meeting</li> <li>■ Oversight Group meeting</li> <li>■ Topic review</li> </ul>
<b>March 2021</b>	<ul style="list-style-type: none"> <li>■ Specifically impacted groups: Organisations contacted</li> </ul>
<b>April 2021</b>	<ul style="list-style-type: none"> <li>■ Stakeholder workshop delivered</li> <li>■ Research framework agreed</li> </ul>
<b>May 2021</b>	<ul style="list-style-type: none"> <li>■ Recruitment started</li> <li>■ Oversight Group meeting</li> </ul>
<b>June 2021</b>	<ul style="list-style-type: none"> <li>■ Dialogue website<sup>1</sup> launched</li> <li>■ Specifically impacted groups: Focus groups 1</li> <li>■ Workshop 1 and 2</li> </ul>
<b>July 2021</b>	<ul style="list-style-type: none"> <li>■ Workshop 3</li> </ul>
<b>August 2021</b>	<ul style="list-style-type: none"> <li>■ Internal interim report</li> </ul>

<sup>1</sup> <https://locationdataethics.uk/engagementhq.com/>

Month	Key decisions and delivery
September 2021	<ul style="list-style-type: none"> <li>■ Specifically impacted groups: Focus groups 2</li> <li>■ Workshop 4</li> <li>■ First draft report</li> </ul>
October 2021	<ul style="list-style-type: none"> <li>■ Second draft report</li> </ul>
November 2021	<ul style="list-style-type: none"> <li>■ Oversight Group meeting</li> <li>■ Final report</li> <li>■ Additional reporting outputs</li> </ul>
December 2021	<ul style="list-style-type: none"> <li>■ Dissemination</li> <li>■ Project close</li> </ul>

## Project governance

Two groups were convened to manage and govern the project: the project management team, and the Oversight Group. Project delivery (project management, design, facilitation, analysis, and reporting) was led by Traverse with focused support from the Ada Lovelace Institute.

### Project management team

The project was managed through regular meetings and communication between representatives from the Geospatial Commission, Sciencewise and UKRI, together with the delivery team from Traverse and the Ada Lovelace Institute. As necessary/appropriate, the independent evaluator Sophie Reid was also involved.

### Oversight Group

The Geospatial Commission convened a group of stakeholders across a range of sectors (including industry, government, research, and non-governmental organisations) to provide oversight for the dialogue and ensure that a wide range of perspectives and views informed the process. See Appendix B for a list of members and terms of reference.

The role of the group was advisory, with objectives to oversee the dialogue process and materials and to help ensure that:

- the **dialogue material** was comprehensive, balanced, and accessible; and
- the **engagement process** was effective and inclusive of all relevant groups where possible.

The Oversight Group provided input into and reviewed the topic review, stimulus materials, design of the process, specialist suggestions, outputs, and the communications strategy for the outputs.

## Research questions

Objectives and research questions as per the original tender

### Overall aim of the public dialogue project

The overall aim of this project is to explore and understand public perceptions of location data ethics, by engaging in dialogue with a diverse and inclusive sample of the public. The outputs will provide evidence that identifies the unique ethical challenges of location data, and inform the Geospatial Commission's future policy work.

### Project objectives

The objectives of this public dialogue were to:

- engage a diverse section of the public, broadly reflective of the UK population;
- explore and understand participants' aspirations and concerns in relation to location data, including how the public perceive the benefits and harms of location data use in a variety of applications;
- understand the values and principles that underlie dialogue participants' views;
- consider specific case studies or uses of location data in more detail;
- publish evidence that can be used to inform wider work and research on location data ethics, in academia, private and public sector;
- provide findings that inform guidance for the private and public sector on the appropriate use of location data, and government's future public engagement and communication approach on location data; and
- provide findings that can be explored in innovative ways to inform future research strategy & policy.

### Research questions

#### Public awareness of location data ethics

- How well informed are the public on location data and questions of privacy and ethics? What pre-existing thoughts and feelings do they hold?
- Are the public aware of the benefits of location data use, and how it supports their lives, and services received?
- Are the public aware of how their data is being used when they choose to share it? Are the public choosing to share their data? Are they aware that they're choosing to use it?
- Do people understand how often, and in what ways, they are sharing location data?
- How do people tend to respond to requests to share their location data? Why?

#### Public perception and prioritisation of ethical issues

- Having informed participants of a number of key issues and case studies (private and public sector) to consider:
  - How do the public perceive the risks and trade-offs?

- What current and future location data opportunities do they imagine will be of direct benefit to them, or their family and friends? What risks resonate?
- What are the red lines or grey areas?
- What are the key ethical issues that the public think government and private sector data users should be considering?
- What values and principles underlie participant perspectives?
- How do participants compare the risks of location data to other types of data when used by the public / private sector?

### **Conditions for public trust**

- Who do the public trust most with their location data? How does public trust vary between the private and public sector, and different size organisations? What are the reasons behind this?
- Do people feel differently about use cases that are 'in the public interest' or 'for the public good' like health research, versus use cases that are commercial or for consumer benefit?
- What are the key influencing factors that determine the level of public trust?
- What criteria would people expect organisations to meet in order to be seen as 'trustworthy' users of location data?
- How could public and private sector actors better engage with the public to improve levels of trust?

### **Revised objectives and research questions**

Following inception meetings, the topic review, and extensive discussion among the project management team, the project objectives and research questions were refined and restructured (Figure 1).

**Figure 1: Agreed dialogue objectives and research questions**





## Topic review process

At the start of the project, February 2021, the Ada Lovelace Institute and Traverse conducted a review of relevant literature to:

- articulate key questions as asserted by practitioners and researchers, forming foundational hypotheses to explore through the rest of the project;
- synthesise existing research on public attitudes towards location data and data more broadly;
- identify potential use cases to explore through the dialogue; and
- provide a concise summary for internal use to inform workshops and material design.

The rapid topic review involved **desk research** (reviewing existing literature and research), and a **stakeholder workshop** (to consider and prioritise domain areas for location data use cases, to inform dialogue design).

A clear framework for this process was shared with the project management group for review early in the process. We worked with key client contacts through informal discussions, and enabled the Geospatial Commission and the Oversight Group to review a draft of the topic review before finalising the document and creating a publishable Easy Read version. The Easy Read document was shared with participants during onboarding, and is expected to serve as useful legacy material.

The topic review explored the following:

- a high-level introduction to location data (including potential value and opportunities, and considerations for developing public dialogue);
- existing research on public attitudes toward data more broadly and public perspectives on location data specifically;
- different definitions of location data toward a proposed definition for the dialogue itself;
- properties of location data;
- potential discussion questions for the dialogue; and
- a range of potential case studies (under nine 'domain areas').

The initial topic review document was further refined following a stakeholder workshop with experts on location data uses and data ethics. This workshop helped to refine the case studies and key questions.

Information from the topic review was used to refine the dialogue process: helping focus topics for discussion and supporting the provision of key information for participants in an impartial and accessible way. Content from the topic review has been used in the background section of the report.

## Recruitment and participation

We applied both a purposive sampling methodology in addition to the more usual UK-reflective methodology typically used in dialogues, to deliver:

- a tailored engagement programme with specifically impacted populations; and
- a public dialogue.

### Specifically impacted groups

We identified five types of experience or characteristics that might make people more likely to be specifically impacted by the collection and use of location data: experience of domestic abuse; experience of being digitally excluded; being forced to migrate (refugees and asylum seekers); black British people; and disabled people. These groups were identified in an iterative way in parallel with the topic review and stakeholder workshop.

We took advice from civil society organisations in terms of how best to involve people identifying with these different experiences and characteristics in the dialogue – either through recruiting them to take part in the main dialogue, or more focused small group discussions. We added two distinct sub-sets to the public dialogue sample, for digitally excluded people and black British people. We designed a parallel track of engagement (consisting of focus groups before the first and final main dialogue workshops) for women who have experienced abuse; forced migrants; and disabled people. For these focus groups, we recruited participants with support from civil society organisations who work with people from those communities. Thanks to the following organisations for their support and advice:

- [Good Things Foundation](#)
- [APLE Collective](#)
- [Chayn](#)
- [Disability Rights UK](#)
- [Manchester City of Sanctuary](#)

The three focus groups took place before the first and final public dialogue workshops, and allowed us to understand how a set of specific experiences and identities interact with people's ideas and views around location data. This fed into the design of materials for the dialogue, as well as surfacing insight to complement findings from the public dialogue workshops.

### Sampling approach for the public dialogue

We aimed to recruit a minimum of 86 participants, which included participants from the public dialogue, as well as participants from two specifically impacted groups: digitally excluded people, and black British people. We over-recruited 101 to account for dropouts throughout the engagement process.

Our public dialogue sample aimed to be broadly reflective of the UK population, taking into account seven characteristics.

- **Geographic location:** we recruited participants from across the four nations and ensured that participants were not solely living in 'super cities', as this may affect their experiences of location data use.
- **Gender:** nationally reflective.

- **Age:** we recruited a broadly reflective sample, including young people between the age of 16 and 18, as this was identified as a specifically impacted group. Our quotas for under 18s was higher than nationally reflective, as we wanted them to feel supported and well represented.
- **Socio-economic background:** nationally reflective.
- **Ethnicity:** a nationally reflective sample would have meant a very small number of non-white participants. We wanted to raise quotas for all non-white groups to ensure these participants felt comfortable, and to ensure that any narratives informed by cultural norms would emerge from the dialogue.
- **Rural or urban location:** nationally reflective.
- **Health:** we recruited 15 participants who experience mental health conditions, and at least 6 participants who shielded during the pandemic due to physical health conditions. Given the relevance of location data to the COVID recovery, wanted to include those most affected by the pandemic and movement restrictions.

## Recruitment approach

We worked with our trusted partners Rite Angle<sup>2</sup> to recruit participants across all four nations. Rite Angle have an extensive panel of fieldworkers across the country, and have 20 years of experience recruiting participants.

To avoid any issues with recruitment, we started the process a few weeks ahead of onboarding. This helped us meet our desired sample fairly easily, but it did impact our drop-out rates, as participants who signed up earlier often found they were no longer available when they came closer to the workshops.

Covid-19 and the progressive 'return to normal' impacted negatively on recruitment and retention of participants, according to anecdotal accounts from recruiters and communications with participants.

We also encountered issues retaining participants from Northern Ireland, as they were mostly recruited early on in the process. Retention was also an issue for digitally excluded participants, as they experienced more barriers to taking part than most participants. Even though we provided them with one-on-one support, a number of our digitally excluded recruits chose to drop out of the process.

A detailed table of our desired and realised sample can be found below.

Recruitment can introduce bias, as people interested in a topic are more likely to sign up and attend. During recruitment, we intentionally used a broad description of the dialogue topic, "location data and its use by different organisations", to try and attract a wider audience and used quotas to reduce bias. All participants were paid at a rate above living wage, to reduce financial barriers to participation and ensure that there was significant incentive over and above interest in the topic to reduce the likelihood of this potential bias. Nonetheless, participants may have been more interested in location data than the general public.

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<sup>2</sup> <http://www.riteangle.co.uk/>

## Reducing attrition

All participants (from the specifically impacted groups and the wider dialogue) received incentive payments for their participation in workshops and online activities to ensure they remained engaged over time. Payments were staggered throughout the main dialogue, weighted towards the end (Table 2).

**Table 2: Incentive payment structure**

Activity	Incentive amount
<b>Tasks 1 and 2 (pre-activity)</b>	£10
<b>Workshop 1</b>	£30
<b>Workshop 2</b>	£80
<b>Task 3: Survey</b>	£10
<b>Task 4: Participant-led research</b>	£30 (£10 for each of 3 interviews)
<b>Task 5: Recommendations</b>	£10
<b>Workshop 3</b>	£80
<b>Bonus for attending workshops 1, 2, and 3</b>	£30
<b>Task 6: Final survey</b>	£10
<b>Workshop 4</b>	£60
<b>Potential total</b>	<b>£350</b>

The Geospatial Commission also spoke in each workshop to reflect their investment in the process and help participants understand the value of the dialogue, what the findings will be used for, and the impact their contributions can have.

## Recruitment sample: Target and achieved

Following best practice and previous experience of drop-out rates with virtual engagement, the intended sample was to recruit 101 people to ensure that 86 participants attended, allowing for dropouts over the course of the process. In the end, we over-recruited 101 to achieve a final sample of 85 participants.

**Table 3: Overview of samples for the public dialogue**

Public dialogue samples	Initial sample	Drop-outs	Final sample
General sample	87	11	76
Additional group: digitally excluded	7	5	2
Additional group: Black British	7	0	7
<b>Total</b>	<b>101</b>	<b>16</b>	<b>85</b>

**Table 4: Planned and achieved samples for the public dialogue – general sample**

		Quota min	Quota max	Initial sample	Drop-outs	Final sample
<b>Total</b>				<b>87</b>	<b>11</b>	<b>76</b>
Location	England	38	42	42	3	<b>39</b>

		Quota min	Quota max	Initial sample	Drop-outs	Final sample
	Scotland	13	16	15	2	<b>13</b>
	Wales	13	16	15	1	<b>14</b>
	Northern Ireland	13	16	15	5	<b>10</b>
Gender	Male	38	48	42	4	<b>38</b>
	Female	38	48	45	7	<b>38</b>
Age	16-19	8	14	9	1	<b>8</b>
	20-34	17	26	19	0	<b>19</b>
	35-49	18	26	23	4	<b>19</b>
	50-64	16	21	20	5	<b>15</b>
	65-74	9	11	8	0	<b>8</b>
	75+	7	11	8	1	<b>7</b>
Socio-economic background	AB	18	23	19	0	<b>19</b>
	C1	22	27	27	3	<b>24</b>
	C2	16	20	15	2	<b>13</b>
	DE	21	25	25	5	<b>20</b>
Ethnicity	Asian	10	13	12	2	<b>10</b>
	Black, African & Caribbean	9	12	10	1	<b>9</b>
	Other groups	9	12	6	0	<b>6</b>
	White	49	59	59	8	<b>51</b>
Rural / Urban	Urban	63	75	68	9	<b>59</b>
	Rural	14	17	17	1	<b>16</b>
Health	Shielding	6	10	8	2	<b>6</b>
	Mental health condition	15	20	13	2	<b>11</b>

**Table 5: Planned and achieved samples for the public dialogue – additional group, digitally excluded**

		Quota min	Quota max	Initial sample	Drop-outs	Final sample
<b>Total</b>				<b>7</b>	<b>5</b>	<b>2</b>
Gender	Male	2	4	3	2	<b>1</b>
	Female	2	4	4	3	<b>1</b>
Digitally excluded	No internet, no device	1	3	2	3	<b>0</b>
	No device	1	3	3	2	<b>1</b>
	No internet access	1	3	2	0	<b>1</b>
Ethnicity	Asian	0	2	0	0	<b>0</b>
	Black, African & Caribbean	0	2	3	2	<b>0</b>
	Other groups	0	2	0	0	<b>0</b>
	White	4	6	4	3	<b>2</b>

**Table 6: Planned and achieved samples for the public dialogue – additional group, Black British**

		Quota min	Quota max	Initial sample	Drop-outs	Final sample
<b>Total</b>				<b>7</b>	<b>0</b>	<b>7</b>
Gender	Male	2	4	3	0	<b>3</b>
	Female	2	4	4	0	<b>4</b>
Socio-economic background	AB	1	2	2	0	<b>2</b>
	C1	0	2	1	0	<b>1</b>
	C2	1	2	1	0	<b>1</b>
	DE	1	3	3	0	<b>3</b>
Ethnicity	Asian	0	0	0	0	<b>0</b>
	Black, African & Caribbean	7	7	7	0	<b>7</b>
	Other groups	0	0	0	0	<b>0</b>
	White	0	0	0	0	<b>0</b>

## Participation in activities

The level of attendance and participation was relatively high throughout the workshops and key online platform activities (tasks 1-6).

**Table 7: Number of participants in each dialogue activity, including online and offline participants**

Activity	Participants
Task 1: Survey 1	80
Task 2: Grab a screenshot	72
Task 3: Survey 2	75
Task 4: Feedback on your research	73
Task 5: Recommendations for trustworthiness	97
Friends and family survey	212
Task 6: Final survey	68
Task 7: Reflecting on your views	5
Task 8: Reflecting on the main stories	6
Task 9: Recap and findings	9
Dialogue evaluation survey 1	75
Dialogue evaluation survey 2	43
Dialogue evaluation survey 3	8
Other fora (jargon, questions and open chat)	4

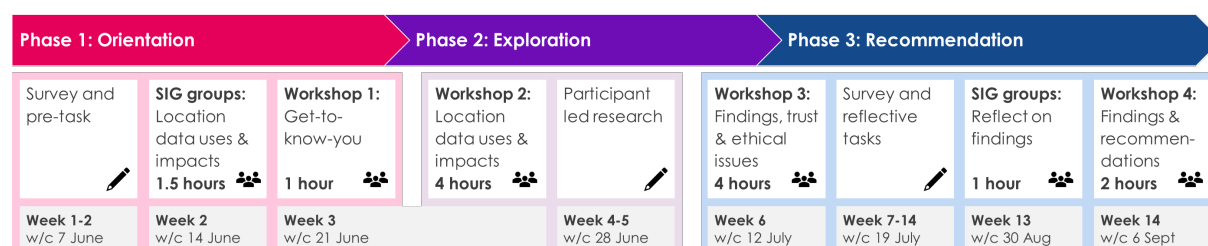
## Dialogue design and delivery

### Process design

The public dialogue consisted of three online workshops over six weeks, through June and July 2021, and a fourth workshop for a smaller number of participants in September 2021. To ensure we captured a wide range of views and provided participants with the opportunity to meaningfully contribute to the discussion, we also included a range of asynchronous activities, including participant-led research.

The public dialogue was structured in three phases – orientation, exploration, and recommendation (Figure 2).

**Figure 2: Dialogue journey**



## Phase 1: Orientation

**Baseline survey and pre-task:** Participants completed a baseline survey (results included in Appendix E) and a short pre-task involving taking a screen-shot of their phone's location settings, and reflecting on their level of awareness these settings.

We used these findings to:

- compare their views with our hypotheses from the topic review;
- understand the range of understanding and awareness amongst participants; and
- provide data to respond to research questions

**Workshop 1:** This first session focused on building participant relationships and confidence. We allocated participants into mixed groups and shared information about the project and what was expected from them. Participants reflected on the baseline survey and pre-task in their groups, as the basis of this initial topic discussion.

## Phase 2: Exploration

This phase was focused on developing participants' understanding of the topic, and supporting participants in shaping and sharing their views.

**Saturday workshop:** We hosted a 4-hour session (with an hour break for lunch) on a Saturday, mixing plenary sessions and discussion groups. Specialists attended both sessions to present information and answer participant questions.

The first two hours focused on developing participant understanding of location data and discussing views on risks and opportunities. In the final two hours, participants explored different use-cases in "Deep Dive" sessions led by invited specialist speakers (see Appendix E: Specialists). In this session, participants were organised into groups based on the use cases they were most interested in learning more about. Participants all attended two of five "Deep Dives", before returning to their original groups. Participants then explored whether these use-cases were perceived as being for the public good, and explored their views on location data in relation to other types of data.

**Participant-led research:** Participants undertook their own research through interviewing up to three friends and family members. We encouraged participants to seek out people with different views to their own.

The participant pack included materials to support these tasks, and data was captured via the Engagement HQ platform. The interview questions focused on perceived risks and benefits of location data, and on public trust in organisations relating to location data. This research involved a further ~210 members of the public.



### Phase 3: Recommendations

**Saturday workshop:** We convened the participants for another 4-hour Saturday workshop with specialists again presenting and discussing with participants. These sessions involved reviewing findings to date, and covered key research questions around conditions for public trust.

We delivered a **final online workshop in September** with 22 participants from different groups, and a few stakeholders to review interim findings – refining priorities for guidance, and recommendations for better engaging public audiences on issues of location data ethics.

#### Materials design

Materials design was a collaborative process, led by Traverse with support from The Ada Lovelace Institute. The process happened in three key stages during the early part of the project:

1. We first defined and refined the dialogue objectives and research questions together with the Geospatial Commission and Oversight Group.
2. We then developed a Process Plan – a document outlining how the dialogue will be designed to meet those objectives and answer those questions.
3. We then designed and developed facilitator guides, slide packs and other stimulus materials for each phase of the dialogue in line with the Process Plan, ensuring each activity was aligned with the objectives and research questions.

Project timelines were designed to allow time for both our own internal quality assurance process (whereby all project deliverables are reviewed by the Traverse Project Director), and for input from the Geospatial Commission and Oversight Group.

The use of stimulus materials, specialists and activities is a strength of dialogue approaches as it supports participants in exploring topics more deeply. As they play a role in participants shaping their views, it is important to reduce bias. Traverse worked closely with the Ada Lovelace Institute and other topic experts to ensure that materials, information, and the overall process were evidence-based and broadly understandable to the wider public. The Oversight Group scrutinised all materials to help mitigate bias, and the independent evaluator also evaluated the process.

It can be challenging to deliver information in an engaging way via an online process. To mitigate this, we sent each dialogue participant a **welcome pack** through the post which included materials to support engagement (a note-book, post-it notes, emoji sticker sets, pen, chocolate), a welcome note with information about the dialogue, mind-mapping templates for engaging with presentations, and a reference sheet of the characteristics of location data to support discussion. Participants also received a welcome email, including a longer participation information booklet, and the Easy Read version of the topic review.

Working with the organisations and participants of the specifically impacted groups, we developed a set of **personas** for the public dialogue to explore the impact of location data use on people with different experiences or characteristics (see Appendix C: Materials).

Prior to final amendments and sign-off, key activities and materials were **piloted** with a small group of people to test timing and practicality of activities, and ensure accessibility for all. This group included a few of the public dialogue participants aged 16-19 years old, and a few non-dialogue participants of different ages, technical ability, and socio-economic backgrounds.

## Young people's participation

We piloted materials with young people (aged 16-19) before the first workshop to ensure the process was inclusive and accessible. Facilitators were asked to monitor younger participants' participation to flag any concerns with the wider team.

## Delivering a virtual dialogue

### Delivery tools

Designing and delivering a wholly online deliberative dialogue process required the use of various digital tools. For the engagement process to be both synchronous (real time discussion) and asynchronous (done by individuals in their own time) we worked across **Zoom** and **EngagementHQ**.

This mixed approach was chosen as it supports effective involvement as participants can digest material, contribute, and interact with each other in a range of ways.

**Zoom** was used to host workshops as:

- it is the platform that people are most likely to be familiar with;
- it has one of the best gallery-view settings for large groups;
- it easily enables participants to work in smaller break-out groups;
- it features helpful chat and polling functions;
- it allows the host and co-hosts to screen-share content or presentations;
- it has sufficient capacity for the audience size of the dialogue; and
- it does not limit meeting length.

**EngagementHQ** was used as an online portal for tasks between sessions. The team used this to follow individual contributions – to flag if participants may have needed help or encouragement, and to understand change in views over time. Data was exported directly to Traverse's bespoke analysis tool, Magpie. Each participant created an individual account and used the platform to:

- complete online tasks in between workshops;
- complete survey questions;
- interact with each other through discussion forums; and
- review information between sessions, such as videos, transcripts of notes, questions and answers, posters, and presentation recordings.

## Addressing digital exclusion

Virtual dialogues pose accessibility challenges for participants who are digitally excluded – facing internet or device access challenges. A dedicated team member was allocated to be the liaison for these participants, providing one-to-one support and regular check-in calls throughout. In the first call, we explored what their particular needs and participation preferences would be, so as to provide a bespoke and individual solution for each of these participants.

Digitally excluded participants were sent a bespoke welcome pack through the post, including detailed instructions for participation (such as how to dial in to Zoom using a traditional phone), and hard-copies of the baseline survey. Additional hard-copy packs were sent at several points throughout the dialogue to provide workshop presentation slide packs and the tasks that other participants would be completing through the website. We provided addressed and stamped envelopes for these participants to return all activities on completion.

## Analysis and reporting

### Analysis

The team of analysts worked collaboratively throughout the process to ensure consistency and to regularly reflect on the coding framework and themes. Key findings were taken back to participants to test and refine our understanding.

### Quantitative data

Survey data (from surveys in EngagementHQ) were used to explore changes in opinion over the course of the dialogue. Quantitative data was analysed in Excel.

### Qualitative data

We considered both stated attitudes and observed behaviours and expressions. This means that we collected data regarding the views participants expressed, but also how they expressed them.



We used a thematic coding framework to enable us to identify areas of consensus and divergence, as well as common narratives and perspectives across activities and groups. Once all the data was entered into our bespoke analysis tool, Magpie, analysts reviewed the data to pull out key themes emerging and shape an early thematic coding framework.

The emerging key themes were discussed between analysts and report writers at internal analysis and reporting meetings. The thematic coding framework was further developed in shaping a storyboard report (an outline of headings and key narratives based on the data), and through iterative review and collaborative working among analysts. The final coding framework is presented in Table 8.

Table 8: Thematic coding framework

Theme	Code
<b>Agency</b>	<ul style="list-style-type: none"> <li>■ Choice</li> <li>■ Consent</li> <li>■ Control</li> <li>■ Reliance</li> <li>■ Resignation</li> <li>■ Ubiquity</li> <li>■ Whose responsibility?</li> </ul>
<b>Benefits</b>	<ul style="list-style-type: none"> <li>■ Benefits people/society</li> <li>■ Convenience</li> <li>■ Economy</li> <li>■ Efficiency</li> <li>■ Individual benefit</li> <li>■ Planning and improvements</li> <li>■ Public interest</li> <li>■ Who benefits?</li> </ul>
<b>Data protection</b>	<ul style="list-style-type: none"> <li>■ Breaches</li> <li>■ Hacking</li> <li>■ Misuse</li> <li>■ Safety (of data)</li> <li>■ Security</li> <li>■ Sensitivity (of data)</li> </ul>
<b>Data type</b>	<ul style="list-style-type: none"> <li>■ Aggregate</li> <li>■ Individual</li> </ul>
<b>Ethics</b>	<ul style="list-style-type: none"> <li>■ Fairness/Justice</li> <li>■ Harms</li> <li>■ Right/wrong</li> <li>■ Risks</li> <li>■ Trade-off</li> <li>■ Trustworthiness</li> <li>■ Values</li> </ul>
<b>Governance</b>	<ul style="list-style-type: none"> <li>■ Accountability</li> <li>■ Checks and balances</li> <li>■ Law</li> <li>■ Legislation</li> <li>■ Penalties</li> <li>■ Regulation</li> </ul>

Theme	Code
	<ul style="list-style-type: none"> <li>- Accountability</li> <li>- Law</li> <li>- Legislation</li> <li>- Rules</li> <li>- Safeguards</li> <li>■ Rules</li> <li>■ Safeguards</li> <li>■ Time limits</li> </ul>
<b>Participant journey</b>	<ul style="list-style-type: none"> <li>■ Change of view</li> <li>■ Influencers</li> <li>■ Key information</li> <li>■ Opening remarks</li> </ul>
<b>Privacy</b>	<ul style="list-style-type: none"> <li>■ Anonymity</li> <li>■ Invasive uses (of data)</li> <li>■ Personal</li> <li>■ Privacy</li> <li>■ Surveillance</li> </ul>
<b>Profits</b>	<ul style="list-style-type: none"> <li>■ Exploitation</li> <li>■ Private companies</li> <li>■ Profit</li> <li>■ Selling data</li> </ul>
<b>Proportionality</b>	<ul style="list-style-type: none"> <li>■ Appropriateness</li> <li>■ Balance</li> <li>■ Justified</li> <li>■ Necessity</li> </ul>
<b>Transparency</b>	<ul style="list-style-type: none"> <li>■ Accessible</li> <li>■ Clarity</li> <li>■ Honestly</li> <li>■ Information</li> <li>■ Risks</li> <li>■ Who, what, why - uses of data</li> </ul>
<b>Trust</b>	<ul style="list-style-type: none"> <li>■ (Dis)trust</li> <li>■ Competency</li> <li>■ Good Intentions</li> </ul>
<b>Use cases</b>	<ul style="list-style-type: none"> <li>■ Health and wellbeing</li> <li>■ Public safety</li> <li>■ Retail</li> <li>■ Sustainable urban development</li> </ul>

## Reporting

The report structure was agreed with the project management team and amended after the first draft. We adopted a thematic structure for the report with commentary about how views changed included where relevant. This structure made it easier to communicate the key findings, while demonstrating the value of deliberative dialogue and how increased levels of information may affect people's views.

We delivered six key outputs, quality assured by our Project Director, and supported by graphic design.

1. **Interim report:** After the first phase of workshops, to support workshop 4 design.
2. **Skeleton report:** The team produced a skeleton report between workshops 3 and 4. This lays out the formatting and style of the full dialogue report, with light-touch headlines of the anticipated content, as well as one full draft chapter, to agree style and structure.
3. **Engagement report:** This is the full report for the dialogue. This report includes the qualitative analysis of the workshops and online tasks, supported by quantitative analysis of the online tasks. Two drafts were provided, with the second being reviewed by the Oversight Group (Appendix C).
4. **Executive summary:** The executive summary is presented in the main report, as well as in a stand-alone separate document for public audiences.
5. **Slide pack:** A slide pack presenting key findings at a higher level for stakeholder audiences.
6. **Infographic:** A high-level, single-page visual summary of the project for members of the public.

All reporting outputs went through robust quality assurance in line with Traverse project quality assurance standards.

## Dissemination

Traverse and the Ada Lovelace institute will design and deliver a routes-to-action workshop and webinar on the findings to support wider dissemination of the project findings. This will include stakeholders who are often involved in creating public guidance, so as to support the development of guidance outputs for the wider work of the Geospatial Commission.

# Appendix B: Process plans

## Orientation – survey and pre-task

- **Length:** 10 minutes
- **Topic:** Baseline
- **Format:**
  - Post
  - Online platform
  - Zoom
  - Telephone
- **Objective/s:**
  - Collect baseline data
  - Orientate participants to the dialogue process
- **Research question/s:** What awareness do participants have of location data?
- **Activities:**
  - All participants receive resource packs via the post
    - o Notebook, pen, post its
    - o Printed welcome pack and instructions for Engagement HQ/Zoom
    - o Printed out stimulus and material from the presentations
    - o Worksheets, blank comic strips
    - o Peer research resources: interview guidance, discussion guide, stimulus to share in interviews
  - Provide participants their individual login details for the online platform (EngagementHQ)
  - Provide 1-on-1 support as needed with accessing EngagementHQ and familiarising with Zoom
  - Participants to complete a baseline survey on location data awareness and attitudes through EngagementHQ

- What do they know about location data?
- What pre-existing thoughts and feelings do they have?
- Do they know if they are sharing their location data? Do they know how it is being used?
- Are they aware of how they benefit from it?
- Screenshot pre-task
  - Participants take a screenshot of their phone's location settings
  - Reflect on their awareness of their settings and the location data they share: "Have you ever looked at or changed this setting before?" "Did you know you were sharing your location data with these apps?" "How does this make you feel?"
- **Materials:**
  - Baseline survey
  - Hard-copy resource packs
  - Welcome pack
  - Screen-shot activity



## Orientation – workshop 1

- **Length:** 60 minutes
- **Topic:** Introduction to the project
- **Format:** Plenary
- **Session objective/s:**
  - Build participant relationships and confidence.
  - Share initial information and expectations.
- **Research question/s:** What awareness do participants have of location data?

Timing	Session	Who / roles	Materials
18:30	<b>Welcome</b>	Lead	Slides
18:45	<b>Breakout rooms</b> <ul style="list-style-type: none"> <li>• Ice breaker and get to know the other participants</li> <li>• Reflect on the task</li> <li>• Discuss awareness of location data: what pre-existing thoughts and feelings do they hold?</li> </ul>	Group facilitators	Facilitator guide
19:05	<b>Introduction to the dialogue</b> <ul style="list-style-type: none"> <li>• Explain the dialogue process and topic</li> <li>• Setting expectations for the group</li> <li>• Tour of EngagementHQ and reminder of the activities to do on it</li> </ul>	Lead	Slides
19:15	<b>Breakout rooms</b> <ul style="list-style-type: none"> <li>• Opportunity for participants to ask any questions about the process or the topic</li> </ul>	Group facilitators	
19:25	<b>Wrap up</b> <ul style="list-style-type: none"> <li>• Thank you</li> <li>• What we'll discuss in the next sessions</li> </ul>	Group facilitators	Slides
19:30	<b>Close</b>		

## Exploration – workshop 2

- **Length:** 2 x 2 hours with 1h break (10:00 – 15:00)
- **Topic:** The basics of location data and use-cases
- **Format:** Plenary and groups
- **Session objective/s:**
  - Develop understanding of the topic
  - Exploring opportunities and risks of location data
- **Research question/s:**
  - What are participants' aspirations and concerns for location data?
  - What do participants perceive the ethical issues to be, and how do they prioritise them?

Timing	Session	Who / roles	Materials
10:00	<b>Welcome</b>	Lead	Slides
10:10	<b>Expert presentations: Location data</b> <ul style="list-style-type: none"> <li>• Introduction to location data and the 'definition' from the topic review</li> <li>• How location data is generally collected</li> <li>• How location data is currently regulated</li> <li>• How location data is generally used at the moment (introduce inferred and linked data)</li> </ul>	Expert	Slides  Participant reflection sheet
10:30	<b>Panel Q&amp;A</b>	Lead to chair, Expert(s)	
10:55	<b>Body Break</b>		
11:00	<b>Breakout room: Uses of location data</b> <ul style="list-style-type: none"> <li>• Exploration of how pieces of data shared by one person can be used for different purposes and by different organisations, including commercial, public good etc.</li> </ul>	Group facilitator	Facilitator guide  Data uses visual

Timing	Session	Who / roles	Materials
	<ul style="list-style-type: none"> <li>Current example is of someone visiting a train station, buying a coffee, tapping through to catch their train, etc. Example demonstrates that the data can be used further by different organisations in addition to the ones the person has physically interacted with – e.g. the police due to a terrorist threat.</li> <li>Participants build a ‘mind map’ of the risks, opportunities and considerations for several of the example uses.</li> <li>Experts on hand to join rooms to answer questions if needed.</li> </ul>		Mind map template
12:00	<b>Lunch</b>		
13:00	<b>Welcome back</b> <ul style="list-style-type: none"> <li>Lead facilitator explains how the next session will work.</li> </ul>	Lead facilitator	
13:05	<b>Uses of location data – deep dive (round 1)</b> <ul style="list-style-type: none"> <li>Participants can choose 2 topics to learn more about (from sustainable urban development – described as ‘building better places to live’; health and wellbeing; retail; and safety of people and public). They select their break out room of choice.</li> <li>In that break-out room, an expert gives more detail on how location data could be used for those purposes – and the risks and opportunities. There is an opportunity for a short Q&amp;A.</li> </ul>	Group facilitator, Experts	Slides  Facilitator guide  Participant reflection sheet
13:30	<b>Uses of location data – deep dive (round 2)</b> <ul style="list-style-type: none"> <li>As above</li> </ul>		
13:55	<b>Body break</b>		
14:00	<b>Breakout room: debrief</b> <ul style="list-style-type: none"> <li>Participants return to their “home group” to debrief about what they have learned in the previous session.</li> </ul>	Group facilitator	Mind map from 11:00 activity

Timing	Session	Who / roles	Materials
	<ul style="list-style-type: none"> <li>They reconnect with the risks and opportunities they brainstormed before, and add any further ideas and comments.</li> </ul>		Facilitator guide
14:20	<p><b>Location data uses and their impacts</b></p> <ul style="list-style-type: none"> <li>Participants discuss which risks and opportunities they find most important.</li> <li>Participants sort risks into three categories: red lines (this should definitely never happen, grey areas (it depends on the circumstances) and no agreement.</li> <li>Participants sort opportunities into three categories in terms of justifying the collection of location data: must have, nice to have, no agreement.</li> </ul>	Group facilitator	Risk and opportunities sorting template
14:50	<p><b>Wrap up</b></p> <ul style="list-style-type: none"> <li>Explaining the participant-led research phase and encouraging participants to seek out views different to their own</li> </ul>	Lead facilitator	Slides
15:00	<b>Close</b>		

## Exploration – participant led research

- **Length:** Flexible
- **Topic:** Attitudes to location data
- **Format:** Online platform
- **Objective/s:**
  - Reflect on information from session 2 & 3
  - Explore perceived opportunities and risks to location data, as well as trust in organisations relating to location data
  - Participants to explore different views from other people
  - Representing views from outside of the group (including groups we may struggle to reach)
- **Research question/s:**
  - What awareness do participants' have of location data?

- What are the conditions of trustworthiness for location data users and processes?

■ **Activities:**

- Have conversations with people they know about location data, the perceived risks and benefits of it and trust in organisations regarding location data. We will encourage participants to seek out views that are different from their own – for instance by talking to different demographics.
- We're asking participants to carry out their own research with people in their life for their thoughts on:
  - o what they know about location data,
  - o what they think about using location data,
  - o what they think the opportunities and risks of using location data are,
  - o who they trust most with their location data and why,
  - o whether people feel differently about use cases for 'public interest' or 'public good' and those for commercial or consumer benefit
- Capture the data they have gathered on Engagement HQ

■ **Materials:**

- Participant pack: Accessible resources on how to interview people (including interview questions and simple infographics if needed)
- Space on EngagementHQ for participants to feed back on the conversations they had. Questions such as 'who did you talk to' 'what did you learn' 'what most surprised you' 'what did people agree on/disagree on' 'how did that change your views on the topic'
- Space on EngagementHQ for participants to start recording recommendations 'what would help people trust location data?' 'what would help people feel safe?'
- Survey on EngagementHQ for participants' research friends to complete

## Recommendations – workshop 3

- **Length:** 2 x 2 hours with 1h break (10:00 – 15:00)
- **Topic:** Recommendations – ethics and trust
- **Format:** Plenary and groups
- **Session objective/s:**
  - Reflect on ethical challenges and how they can be mitigated
  - Understand conditions for trustworthiness
  - Start developing recommendations for public trust
- **Research question/s:**
  - What do participants perceive the ethical issues to be, and how do they prioritise them?
  - What are the conditions of trustworthiness for location data users and processes?

Timing	Session	Who / roles	Materials
10:00	<b>Welcome back</b> <ul style="list-style-type: none"> <li>• Recap from the previous sessions</li> <li>• Plan for the day</li> </ul>	Lead	Slides
10:05	<b>Plenary</b> <ul style="list-style-type: none"> <li>• Explainer on individual vs aggregate location data</li> <li>• Presentation of overview of the participant-led research phase, building on the information provided by participants on EngagementHQ</li> </ul>	Lead	Slides  Participant reflection sheet
10:25	<b>Breakout rooms: Research findings</b> <ul style="list-style-type: none"> <li>• Share and analyse findings from the participant-led research               <ul style="list-style-type: none"> <li>○ What was most surprising?</li> <li>○ What new perspectives did they hear?</li> <li>○ How does this compare to opportunities/risks discussed previously?</li> </ul> </li> <li>• Begin mapping which organisations people seem to trust with their location data and why</li> </ul>	Group facilitator	

Timing	Session	Who / roles	Materials
	<ul style="list-style-type: none"> <li>○ What does this teach us about trustworthiness?</li> <li>○ What are the key factors in determining trustworthiness?</li> </ul>		
11:00	<b>Body break</b>		
11:05	<b>Breakout rooms: Ladder of trustworthiness</b> <ul style="list-style-type: none"> <li>• Building on the research findings, groups will build a “ladder for trustworthiness”, using a visual template reflecting snakes and ladders. They will explore what organisations could do to build their trustworthiness in using location data (moving up the ladder), and what would reduce it (sliding down the snake).</li> <li>• Reflect on the different ideas through the lens of different personas.</li> </ul>	Group facilitator	Ladder of trustworthiness template  Personas
11:55	<b>Wrap up</b> <ul style="list-style-type: none"> <li>• What we'll discuss after the break</li> </ul>	Group facilitator	
12:00	<b>Lunch</b>		
13:00	<b>Welcome back</b> <ul style="list-style-type: none"> <li>• Recap</li> </ul>	Lead	Slides
13:05	<b>Plenary</b> <ul style="list-style-type: none"> <li>• Introduction to ethics from Prof. Shannon Vallor</li> </ul>		
13:15	<b>Break-out rooms: Ethical considerations</b> <ul style="list-style-type: none"> <li>• Participants reflected on the introduction to ethics presentation, before exploring emerging ethical considerations in discussion – privacy, choice, fairness, security, and trust.</li> <li>• Participants used the persona cards to reflect how different personas might experience the ethical considerations differently.</li> </ul>	Group facilitator Experts	Persona cards  Brainstorming template  Participant reflection sheet

Timing	Session	Who / roles	Materials
	<ul style="list-style-type: none"> <li>Experts to join rooms when requested by groups to provide clarifications / information.</li> </ul>		
	<b>Body break to be taken as needed</b>		
<b>14:30</b>	<b>[Optional] Revisiting the ladder of trustworthiness</b> <ul style="list-style-type: none"> <li>Based on the ethics discussion, participants revisit the ladder they created in the morning to update / change anything as needed.</li> </ul>	Group facilitators	Ladder of trustworthiness
<b>14:50</b>	<b>Wrap up</b> (thanks and next steps)	Lead	Slides
<b>15:00</b>	<b>Close</b>		



## Recommendations – online tasks

- **Length:** 15 minutes
- **Topic:** Data awareness and attitudes
- **Format:** Online platform
- **Objective/s:**
  - Build on base line data
  - Explore changes in views throughout the project
  - Participants to engage in the reporting process by reflecting on what they think the key stories are
  - Participants to review Traverse's headline findings
- **Activities:**
  - Participants to complete a survey on location data awareness and attitudes through EngagementHQ
  - Reflecting on their experience in the group: How did they find it? What could be improved? What was their main takeaway/the most important topic discussed?
  - Shortly after session 5: Participants to explore what they felt the main stories from the engagement process were.
  - Shortly before session 6: Reconnect participants with the subject matter – share our findings to date which participants will explore in a forum exercise: Do these findings align with their views? Have their views shifted? Have they come across any extra information on the topic?
- **Materials:** EngagementHQ activities (reflecting on draft findings)

## Recommendations – workshop 4

- **Length:** Thursday 9 September, 18:00-20:00
- **Topic:** Recommendations and reporting
- **Format:** 24-28 participants, plenary and groups
- **Session objective/s:**
  - Explore emerging themes and tensions
  - Recommendations for trustworthy location data use

Timing	Session	Who / roles	Materials
18:00	<b>Welcome</b>	Lead	
18:05	<b>Presentation of findings</b> Brief presentation of the main themes that emerged in workshops 1-3 and EngagementHQ, covering interim findings that will support the next activity	Lead	Slides
18:20	<b>Breakout rooms: Reflecting on findings</b> Facilitators will guide group discussions to reflect on the headline findings, surface things that participants feel may be missing or misrepresented, and clarify any tensions or contradictions that have emerged in the analysis.	Group facilitator	Facilitator guide Facilitator slides
18:55	<b>Body break</b>		
19:00	<b>Breakout rooms: Making recommendations</b> Groups will reflect on all they have heard in the dialogue to develop recommendations for what organisations using location data could do to be more trustworthy. Participants will be encouraged to think from a community / societal perspective.	Group facilitator	Facilitator guide Facilitator slides
19:45	<b>Wrap up</b>	Lead	Slide pack
20:00	<b>Close</b>		

# Appendix C: Materials

Figure 3: Before workshop 1 – Properties of location data

## A framework to help you think about location data

Location data can take many forms, and can be collected and used in different ways. Some properties are listed below (a few might be familiar from the introduction booklet). You can use this list of prompts to help you think about the ethics of location data in the dialogue.

**Is the location data...**

personal or not personal?	Location data can be about something <b>personal</b> (like where people and their belongings are) or about something that is <b>not personal</b> (like natural or human-made objects, landmarks and geographies).
individual or aggregate?	Location data can be about one person or object ( <b>individual</b> ), or groups of people or things ( <b>aggregate</b> ) – like how many people travel to a certain place, or what proportion of a population live in a particular area.
direct or inferred	Location can be <b>directly</b> described by a set of coordinates, address, or GPS tracking data. Or it can be <b>inferred</b> (worked out) from other data, like identifying landmarks in video footage, or looking at social media for clues (like names of towns or businesses).
used by public or private sectors?	Location data can be collected and used by different people or organisations. This could be <b>public sector</b> (like local and national government, the NHS, and police forces), <b>private sector</b> (like technology and social media companies, and retailers) or academic <b>researchers</b> and <b>charities</b> .
shared actively or passively?	A person might <b>actively</b> share their location data (like by typing their address into an online form). Or location data may be <b>passively</b> collected as part of some other activity (like when debit card company logs where something is bought). Sometimes it can be <b>in-between</b> though, like when you first consent to an app recording location data whenever you use it.
relative or absolute?	Location can be where a person or thing is compared to another person or thing ( <b>relative</b> ), like where phones are in relation to each other (using Bluetooth contact tracing). Or it can be where a person or thing is on earth ( <b>absolute</b> ), like co-ordinates, GPS, or addresses.
about something that moves or doesn't move?	Location data can be about things that <b>don't move</b> (like roads or buildings) or things that <b>do move</b> (like people, phones or cars).
specific or less specific?	Location data can vary from <b>very specific</b> (like the exact place that a butterfly is sitting, or accuracy within a millimetre) to <b>not at all specific</b> (like what continent or planet you are on), or somewhere <b>in-between</b> (accuracy within a few meters, or the town someone is in).
high quality or low quality?	Data quality can vary. It can be <b>high quality</b> (very accurate), or it can be <b>low quality</b> (patchy, out of date, full of mistakes, or missing important details).

Figure 4: Workshop 2 – Location data story









### Does it make a difference if the location data is about one person (individual), or about lots of people (aggregate)?

- Organisations collect and use an individuals' location data when it's needed to provide a specific service, such as a supermarket website that shows you where the nearest shop is, or in specific situations, such as when the police are trying to determine the location of a person of interest in an investigation. Aside from these circumstances, organisations are often more interested in 'aggregate' data for research.
- Aggregate data is data about lots of people, where the identity of each person in that dataset isn't important.
  - For example, if National Rail want to plan a new train route, they might use aggregate data about how many people travel between what towns and when. This data is not about any one person, it is about the number of people who travel.
- If an individual person can be identified through aggregate data, this would count as personal data and be subject to data protection laws.



### Am I being tracked all the time through location data?

- There is not one single organisation that is tracking every person, all the time.
- Location data is collected and used whenever someone interacts with a service that needs information about location in order to work.
  - For example, if you use Google Maps on your phone to plan a route, Google Maps will collect data about your phone's location to plot that route accurately – it can't tell you where to go if it doesn't know where you are. You can still use the map without sharing your location, you'll just have to work out where you are and where to go without help from Google Maps.
- Sometimes location data is also collected even when the service you are using isn't directly related to your location. Organisations might gather this data to better understand things like where people using their services are, so that they can plan or improve their products.
  - Like your bank checking the location of card purchases to detect fraud





### How easily could another person access location data about me?

- Unless you share data about your location with another member of the public, it is very unlikely that they could access data about your location.
  - For example, you might share your location via WhatsApp with your friend, so they can find you in the park. Or you might share your taxi journey location with your partner, so they can see when you'll get home. But unless you actively share that data with them, they cannot see it.
- Similarly, where organisations collect data, there are laws about who at the organisation can and cannot access that data.
  - For example, Facebook may show you adverts based on your location data (e.g. for local businesses), but that happens by an automated process and does not mean that anyone who works for Facebook could access your location.



### What security measures are there to protect a person's location data?

- The UK's data protection laws require that organisations ensure personal data is held safely and securely, to prevent it being breached or stolen.
- This means that organisations that collect location data about people have a duty to protect it from being accessed or used unlawfully or inappropriately. They may protect data by doing things like: anonymising data by removing personally identifiable information; restricting who can access the data; or encrypting data, which means storing it in a technical format that can only be read with the correct password or 'digital key'. Some researchers have questioned how effective anonymisation techniques are for fully ensuring privacy.
- Some of the biggest fines handed out by the UK Information Commissioner's Office have been in relation to organisations that have not held data securely enough. Last year, British Airways were fined £20million because of a data breach that happened in 2018.
- You can read more about security measures described by law on the Information Commissioner's Office website.





### How do I know if my data has been stolen or if there's been a data breach?

- Under UK law, if an organisation has a data breach they must notify the Information Commissioner's Office if there is a risk to an individual's rights and freedoms: in other words, if they think the data could be used to adversely affect a person.
- They must also tell the individual about the breach, tell them what data was breached and advise them how to minimise the impact (such as by changing their account password).



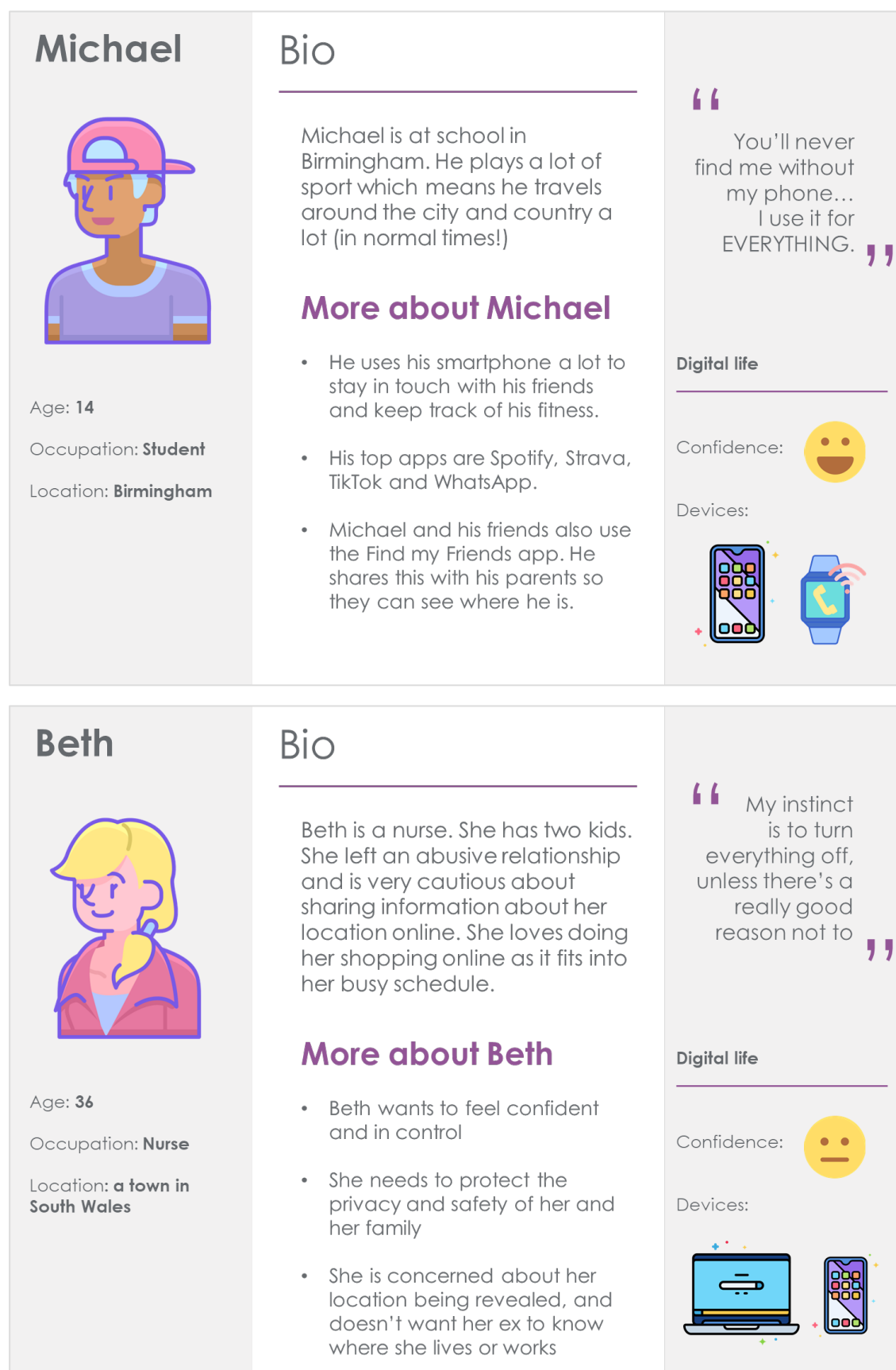
### Is there any way of seeing an overview of who I regularly share my location data with?

- There are lots of services that we all use every day that may collect location data. However, our ability to know about this varies depending on the service. Some mobile phones let you see which apps and services use location data. Similarly, some cookie notices on websites will show this too.
- Any organisation that gathers data about people is required to have a privacy notice, or information in their terms and conditions about how they gather and use location data.
- Although there isn't one simple place to see an overview, you do have certain rights under the UK GDPR that mean where an organisation gathers and uses data about you, you can ask to know what they use and why, and even to see a copy of any data they collect about you.
- You can read more about your data rights on the [Information Commissioner's Office website](#).





Figure 6: Workshop 3 – Personas



## Darya



Age: 42

Occupation: **Looking for work**

Location: **Sheffield**

## Bio

Darya was recently granted refugee status in the UK. She was an accountant in Iran, and is now volunteering while she looks for work.

### More about Darya

- Darya is working on her English but she currently struggles with reading and writing in English
- She has a smartphone but she keeps data switched off most of the time to save money.
- Darya is really worried about doing anything that might affect her refugee status

“ I don't have much money right now, so I switch off mobile data most of the time ”

### Digital life

Confidence:



Devices:



## Sami



Age: 28

Occupation: **Works part time in marketing**

Location: **small village outside of Belfast**

## Bio

Sami works part time, doing marketing for a small business. She is autistic, and has a long-term health condition.

### More about Sami

- Sami has a smartphone that she uses a lot. Facebook and Facebook Messenger, Instagram and news apps are the ones she uses most often.
- Sami is worried about doing anything that might affect her benefits
- Sami visits a specific clinic regularly for her long-term health condition

“ Living miles away from anything means social media is the main way I stay in touch with people ”

### Digital life

Confidence:



Devices:



## Vinny



Age: **74**

Occupation: **Retired**

Location: **London**

## Bio

Vinny is retired and lives alone. He loves his neighbours and does as much as he can in his local community. He uses a wheelchair which helps him be much more mobile than he would be otherwise.

### More about Vinny

- Vinny is really worried about being scammed using information people find about him online
- Vinny has a mobility impairment and diabetes. He is a very private person and doesn't want people to know about his health conditions.

“ I'm a total technophobe. My grandkids make fun of me, but you will never get me on a computer. Never. ”

### Digital life

Confidence:



Devices:



# Deep dive presentations

Figure 7: Deep Dives – Sustainable Urban Development

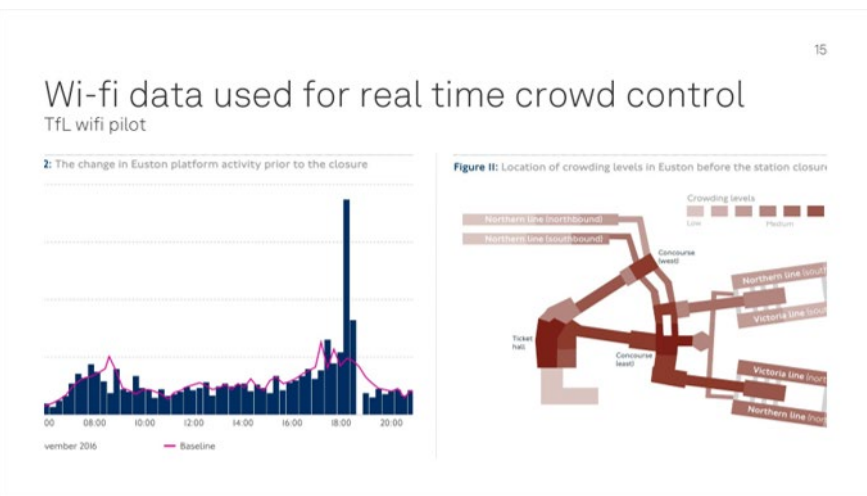
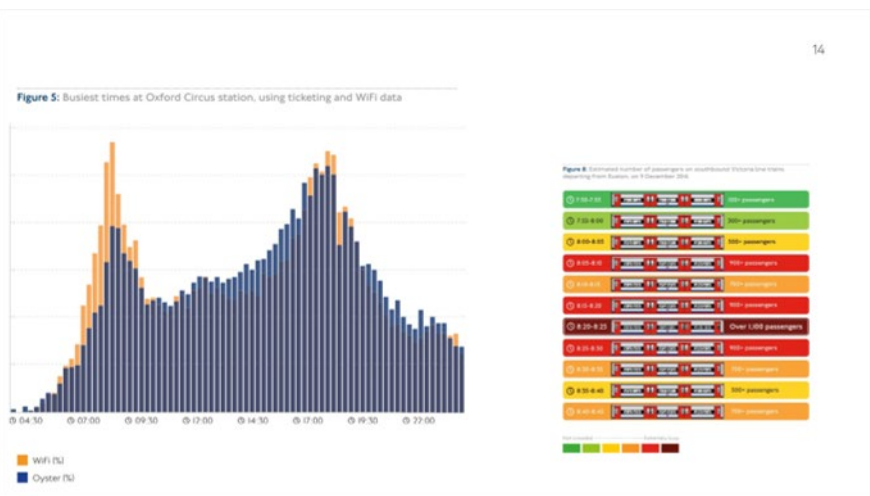
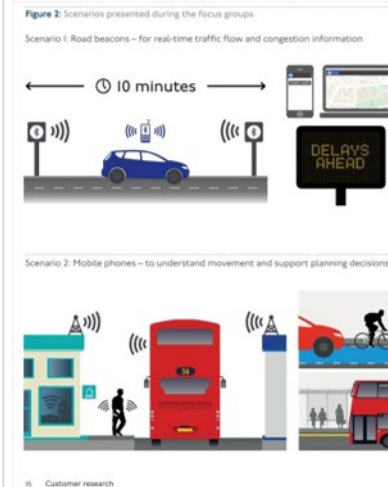
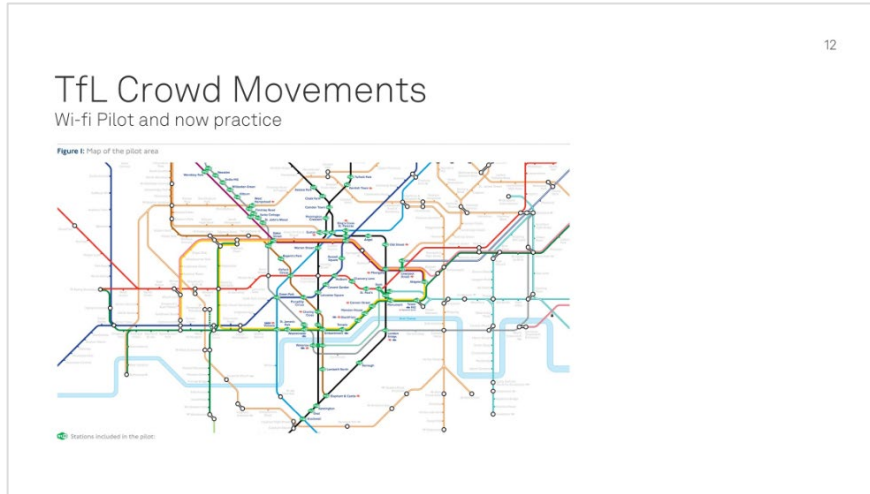
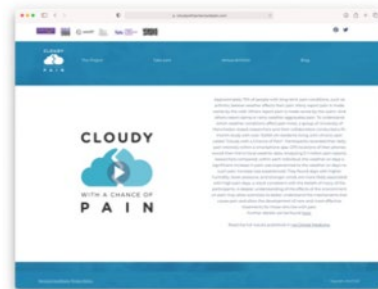


Figure 8: Deep Dives - Health

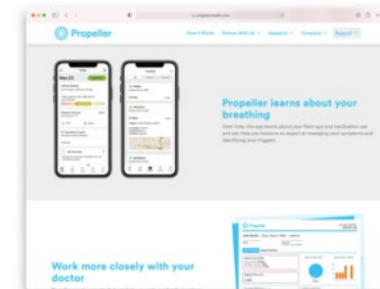
### Enabling innovative health research

- Mobile phone app records location, people enter details about how much pain they feel.
- The time, date and location allow researchers to link pain reports to recorded weather conditions.
- Found that high humidity, low pressure and strong winds are associated with higher pain days.



### Helping patients to manage their health

- Senses when patients take their asthma inhaler and links data on time and location to environmental factors (UV, pollen count, air pollution, etc)
- Helps to manage the condition. E.g. if I take my inhaler more on high pollen days, the app alerts me if high pollen is forecast.



### How identifiable is the data?

- More precise usually means more identifiable. How precise does the location need to be?
- Is the location itself important? Or is it only needed to link other information (e.g. weather)?



### Inferences: using data to form opinions

Deprivation is associated with shorter life expectancy and poor health.



- Should my health insurance company infer that I have shorter life expectancy if they know that I live in a deprived area?
- Should a prospective employer decide not to hire me because they can infer that I'm at risk of poor health?

Figure 9: Deep Dives - Retail

Location data uses – deep dives | Retail

### Segmentation

- Everyone fill in the census which describes their circumstances- what they do, where they work, if they have children etc
- Data companies complement this data with local surveys and openly available data like house prices
- Data companies use this data to identify segments of people who live in different areas
- Retailers buy this data to find out where their customers live, where they should open stores, where to launch new services and so on

1. Affluent Achievers	A	Leash Lifestyles
	B	Executive Wealth
	C	Welfare Housing
2. Rising Prosperity	D	City Professionals
	E	Career Climbers
3. Comfortable Communities	F	Countrywide Communities
	G	Successful Suburbs
	H	Steady Neighbourhoods
	I	Comfortable Seniors
	J	Starting Out
4. Financially Stretched	K	Student Life
	L	Modest Means
	M	Striving Families
	N	Poorer Pensioners
5. Urban Adversity	O	Young Hardship
	P	Struggling Families
	Q	Difficult Circumstances

Location data uses – deep dives | Retail

### Video Analysis

- Retailers put up cameras to view the visitors to their stores
- Companies install software on the cameras to process the images – often using *artificial intelligence*
- The software can be used for simple things, like counting people – or more complicated things, like measuring the time people spend in the store, or how many people visit certain parts of the store
- Some software can approximately identify customers' age and gender

Location data uses – deep dives | Retail

### Mobile Phone Data

- Customers use mobile phones, which connect to a network of masts
- Mobile phone companies see which devices connect to which masts, and when – to build a view of how devices travel around
- Phone companies may anonymise this data, and use it to create statistics on the number of people visiting different parts of the UK at different times.
- The precision of the data depends on the size of the cell mast – it may be accurate to 100m in cities, or 5km in rural areas
- Some operators may combine the network data with other anonymous information about a customer, like their age and gender, or analyse data over time to estimate where someone lives or works
- The phone companies may sell this data to retailers, to help them understand how many people are visiting the areas where their stores are located.

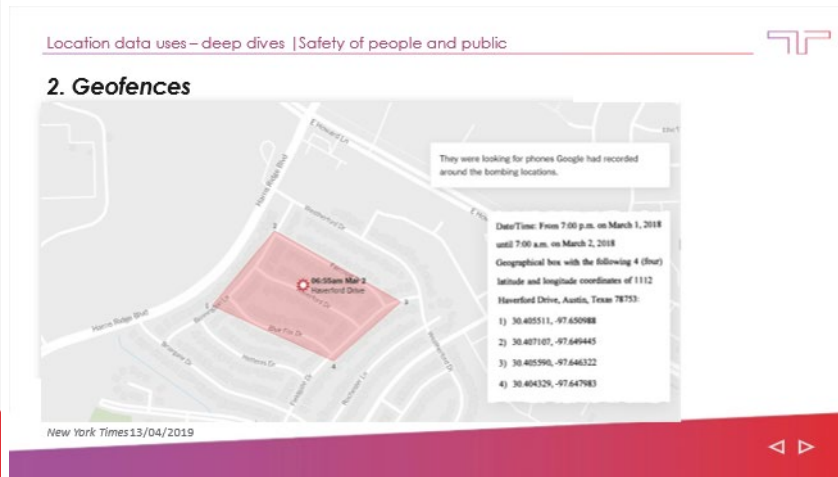
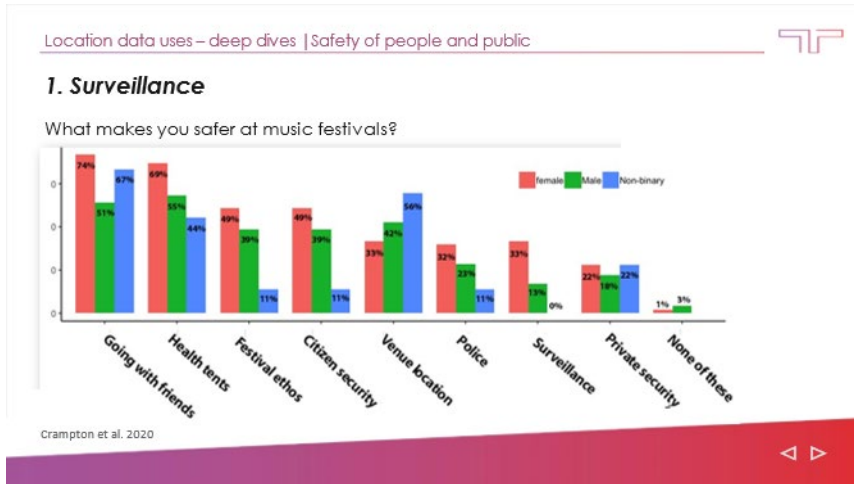
Location data uses – deep dives | Retail

### GPS Data

- Customers use their phone to download apps, which collect GPS data to provide a service, like a map or local weather
- GPS data is often very precise- to within a few meters
- The app developer collects the GPS data and sells it to a data company, who combine the data from lots of handsets and apps
- The GPS data gives a view on how many people are in a store, or in the local area. It may be combined with other information derived from apps, like an individual's interests or web browsing history
- The data may be used to create information which the data company sells to a retailer- e.g. a report on how many people are in different parts of the city
- The data may also be used to display an advert, via an app or browser, to an individual when they are in the area of the store- encouraging them to visit the store



Figure 10: Deep Dives - Safety of people and public



# Appendix D: Oversight Group

## Membership

The Geospatial Commission convened a group of stakeholders from industry, policy and academia, to provide oversight for the dialogue. While the members of the group may be affiliated with specific organisations, they were not representing the views of those organisations.

**Table 9: Oversight Group members**

Role	Name	Organisation
<b>Chair</b>	John Pullinger	Previously the UK's National Statistician
<b>Member</b>	Andy Gregory	Home Office
<b>Member</b>	Ben Lyons	Centre for Data Ethics and Innovation
<b>Member</b>	Charles Kennelly	ESRI
<b>Member</b>	Chris Wroe	Telefónica UK
<b>Member</b>	David Leslie	Alan Turing Institute
<b>Member</b>	Ellis Parry	Information Commissioner's Office (ICO)
<b>Member</b>	Jagdev Singh Virdee	Independent Consultant
<b>Member</b>	Jeni Tennison	Open Data Institute
<b>Member</b>	Josh Berle	Mastercard
<b>Member</b>	Lisa Allen	Open Data Institute
<b>Member</b>	Marcus Grazette	Privitar
<b>Member</b>	Matthew Rice	Information Commissioner's Office (ICO)
<b>Member</b>	Mick Ridley	Global
<b>Member</b>	Phil Earl	Department for Digital, Culture, Media and Sport
<b>Member</b>	Philippa Sharma	Department for Business, Energy and Industrial Strategy (BEIS)
<b>Member</b>	Renate Samson	Which?



Role	Name	Organisation
<b>Member</b>	Professor Shannon Vallor	Ethics of Data and Artificial Intelligence programme - Edinburgh Futures Institute (EFI)
<b>Member</b>	Simon Whitworth	Office for National Statistics (ONS)
<b>Member</b>	Sue Bateman	Government Digital Service (GDS)
<b>Member</b>	Toby Wicks	UNICEF
<b>Member</b>	Professor Yves-Alexandre de Montjoye	Imperial College London

## Terms of Reference

### Background

The Geospatial Commission (GC) published the UK Geospatial Strategy in June this year, setting out how the UK will unlock the power of location data. In the strategy the Geospatial Commission made a commitment to publish guidance on location data ethics.

To support the development of this guidance, the Geospatial Commission has partnered with Sciencewise, a UKRI-funded programme that supports public dialogue on science and technology, for a Full Public Dialogue on Location Data Ethics.

This project will explore informed public perceptions of location data ethics, by engaging with a reflective sample of the public. It will use different methods and case studies to gain an understanding of public views, drivers and principles regarding location ethics, privacy and trust. It will explore public awareness of location data ethics, public perception of ethical issues and conditions for public trust. We expect the project to commence on 1 February and continue until the end of November 2021.

To assist the delivery of this initiative, and maximise value from this dialogue, an independent oversight group (OG) has been established.

### Purpose

The Oversight Group is composed of key public and private sector organisations with expertise in location data ethics and will be chaired by John Pullinger (previously the UK's National Statistician).

The role of the group is to oversee the dialogue process and materials, and to help ensure that:

- The dialogue material is:
  - Comprehensive
  - Balanced

- Accessible to the lay audience
- The engagement process is:
  - Reflective
  - Accessible
  - Targets all relevant stakeholder groups

In addition, members will be expected to:

- Bring diverse views and perspectives to the framing of the dialogue
- Bring intelligence from their own organisations and experiences to help shape the dialogue
- Disseminate and promote findings through their own networks
- Help select appropriate experts to inform the dialogue process, materials and speak at events, where necessary

It is expected that the Oversight Group will comment on the following for the public engagement process:

- Background/stimulus materials
- Communications strategy
- Language and framing
- Questions asked during the dialogue
- Sampling and recruitment
- Outputs from the dialogue exercises (reports, videos etc)

The role of the Oversight Group is advisory. It is the responsibility of GC and Sciencewise to make decisions on the dialogue process, materials and disseminate the outcomes to stakeholders.

## Meetings and working methods

The first meeting will take place on Tuesday 9 February at 1030-1230. There will be two additional meetings: after the pilot and scoping phase (mid-May), and for a discussion of dialogue results (November). Each meeting will be no more than 2 hours long. There will be occasional requests for input between formal meetings.

All meetings will be hosted jointly by the GC and Sciencewise, and chaired by John Pullinger. Membership is detailed at Annex A.

All meetings will be conducted using the video conferencing tool "Google Meet". We encourage attendees to make full use of the chat function. Please see Annex B - Video Conferencing Code of Conduct.

## Secretariat

The Geospatial Commission Secretariat will discuss and manage the agendas, minutes, actions and work programme in conjunction with the Chair.

# Appendix E: Specialists

Sciencewise dialogues involve members of the public interacting with subject-matter specialists to learn and explore together. As such, a range of industry experts, academics, and representatives from other relevant bodies were invited to:

- present a deep dive session at workshop 3;
- participate in Q&A sessions in break-out discussions; or
- present in plenary information sessions

Specialists were selected based on their area of expertise aligning with the requirements for the dialogue sessions, as well as the approval of the project management team.

Wherever specialists were presenting slides, this was done so with the support of engagement specialists at Traverse to ensure accessibility.

**Table 10: Specialists that participated in the dialogue**

Name	Organisation	Participation
<b>Erik Nielsen</b>	Connected Places Catapult	Workshop 2
<b>Marcus Grazette</b>	Privitar	Workshop 2
<b>Chris Wroe</b>	Telefonica	Workshop 2
<b>Nick Portnell</b>	Thames Valley Police	Workshop 2
<b>Jeremy Crampton</b>	Newcastle University	Workshop 2
<b>Anjali Mazumder</b>	Alan Turing Institute	Workshop 3
<b>Tania Duarte</b>	We and AI	Workshop 3
<b>Charles Kennelly</b>	ESRI	Workshop 3
<b>Prof. Shannon Vallor</b>	University of Edinburgh	Workshop 3

## Guidance provided to specialists

### About the project

The Geospatial Commission, UKRI and Sciencewise have commissioned Traverse to deliver a public dialogue on the ethics of location data in partnership with the Ada Lovelace Institute. The aim of this research is to understand the public's attitudes to location data and explore what opportunities, risks and ethical considerations are brought about by its use. Our aim is for participants to design recommendations for the trustworthy and ethical use of location data, to help inform guidance for organisations on the topic.

Public dialogue is a process during which members of the public interact with scientists, stakeholders (for example, research funders, businesses and pressure groups) and policy makers to deliberate on issues relevant to future policy decisions. Such dialogue is normally used to inform the policy-making process; effectively as part of the evidence-base alongside other types of evidence.

A public dialogue is different to other research methods like surveys or focus groups. It creates a journey where participants can hear from experts, discuss with others and form their own informed opinions over an extended amount of time.

In this dialogue, around 85 participants will be involved in three workshops on Zoom over 6 weeks, through June and July 2021; with a fourth workshop for a subset of participants in September 2021.

Crucial to the success of this project, is for the public participants to have the opportunity to interact with specialists in the field or those with lived experience of location data use. Moreover, we are seeking to provide a range of different perspectives on how geospatial data could be applied in the context of the UK. This means we are looking for a range of people to take part in the online workshops in June and July 2021.

### Project timetable

The project will be held online over June, July and September. It has been spread out to give participants time to get up to speed with some of the complexities around geospatial data. The research schedule is designed to take the participants on a voyage of discovery so that on the final day they are able to debate issues in an informed way.

**We request that you log on 20-30 minutes early to each session you participate in.**

The broad outline is as follows:

Week	Activities	
Week 1 & 2	Online activities and survey on Engagement HQ only	
Week 3	Workshop 1	Thursday 24 <sup>th</sup> June 2021 6.30pm – 7.30pm
	Workshop 2	Saturday 26 <sup>th</sup> June 2021 10.00am – 12.00pm 1.00pm – 3.00pm
Week 4 & 5	Personal research project only	
Week 6	Workshop 3	Saturday 17 <sup>th</sup> July 2021 10.00am – 12.00pm 1.00pm – 3.00pm

Week	Activities	
	Online activities on Engagement HQ	
Week commencing 6 September	Online activities on Engagement HQ	
	Workshop 4	9 September 2 hour session

### Role and purpose of specialists in public dialogue

The attendance of specialists is crucial to providing participants with access to information about geospatial data in an accessible and engaging way, as well as exposing them to a range of perspectives on the technology.

There are different levels of involvement you might have with the project:

- **Guest speaker** – presenting on a range of topics. We will provide high-level suggestions of key information the presentation should convey, and work with you on the materials to ensure they are accessible for participants and are consistent in style across the sessions. You would be expected to develop the content for the presentation, and consider feedback provided by the project's oversight groups. You will give the presentation in an allotted plenary session, delivered online.
- **Group sessions** – if you have been asked to take part in the group sessions you will be asked to rotate between the online break-out groups or 'rooms' and to join in the discussions where appropriate to help answer any questions participants might have or to highlight where their thinking might or might not work, for example. We would also share with you the information that participants had received up to that point.
- **Pre-recorded Zoom interviews with Traverse** – it may be useful to use shorter snippets of information in the break-out sessions, and a pre-recorded Zoom interview can be very effective in ensuring that all participants get exactly the same information. These would be played during live sessions.

This process is invaluable for participants to ensure they have a good understanding of the topic, to correct any misunderstandings and clear up anything they are confused about.

It also can be a valuable and rewarding process for specialists. It gives you the opportunity to understand public attitudes and perceptions around the ethics of location data in the moment, without needing to wait for publication of the results.

## Guidance for specialists

Below we have also provided some general guidance for interacting with participants in the context of deliberative dialogues. We will also hold **a briefing session for you at 1.30-2.30pm on Wednesday 23rd June 2021**, in which we will run through the schedule and your role. This will help to ensure consistency across all contributions and to eliminate any risk of bias.

These dialogues follow the [Sciencewise Guiding Principles](#), in that they take place between the general public, policy makers, and scientists, providing participants with information and views from a range of perspectives. Participants are not expected to become experts in the technology, but bring their own life experiences to bear on its social and ethical implications.

The [Sciencewise Guiding Principles](#) recommend that relevant stakeholders are involved at appropriate times in the oversight of the dialogue process, including the production of materials to inform the public participants. It clearly outlines that:

- the dialogue be conducted fairly with no in-built bias; non-confrontational, with no faction allowed to dominate; all participants treated respectfully; and all participants enabled to understand and question others' claims and knowledge; and
- participants are provided with information and views from a range of perspectives, and encouraged to access information from other sources, to enable participants to be adequately informed.

A specialist can explain their organisation's views on location data ethics. However, it is important not to communicate your personal views on the issues being raised in discussions, either verbally or with facial expressions or body language.

When joining in discussions in small groups it is important:

- To be aware that the facilitator has a specific task, and a series of agreed questions that relate to the project's overall research questions;
- To cooperate with the facilitator in enabling participant deliberation – if you do wish to ask questions, please try and keep them in line with the flow of the discussion; and
- Try not to get involved in a question and answer back-and-forth with participants – they should be talking to each other and exploring their own and each other's views on the facilitator's questions.
- You may hear opinions that you do not agree with, please allow participants to explore their ideas and share their opinions and deliberate the issues.
- However, where these are based on misconceptions, or a clear misunderstanding of what they have been told please work with the facilitator to reiterate the facts.
- If there is a point arising which is relevant to the project and you would like to explore further again please highlight this to the facilitator (using the Zoom icons or chat function) and the facilitator will explore the issue in more detail for you if time permits.

- It is important that you do not get defensive if participants are disparaging of the technology or of your organisation's position, or feel the need to protect a concept as this may skew the deliberation.
- Similarly, you should not echo or support any views expressed by participants.

### Confidentiality

While the project report will be published in the public domain, you are asked to not share any information about the project or your participation in it prior to that. There will be a requirement for specialists to keep discussions and outputs from the workshop, content of the workshops and early iterations of project outputs (before publication) confidential.

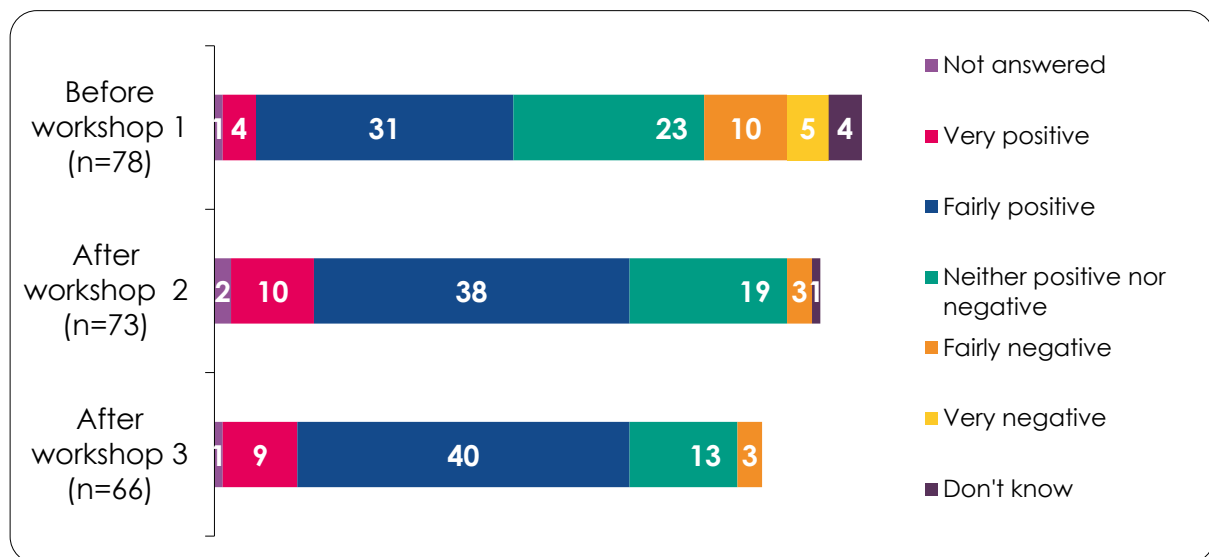
While feedback in the workshop will be captured, the full discussion will not be minuted or attributed.

# Appendix F: Data and charts

## Survey data

The following data and charts display results from surveys completed by participants. These questions measured a variety of topics that gauged respondents' knowledge, opinions and learning throughout the project.

**Figure 11: Participant responses to the survey question 'From what you know and have heard about location data, to what extent do you think its use is positive or negative for society in general?' at different points in the dialogue**



**Figure 12: Participant responses to the survey question 'From what you know and have heard about location data, to what extent do you think its use is positive or negative for you personally?' at different points in the dialogue**

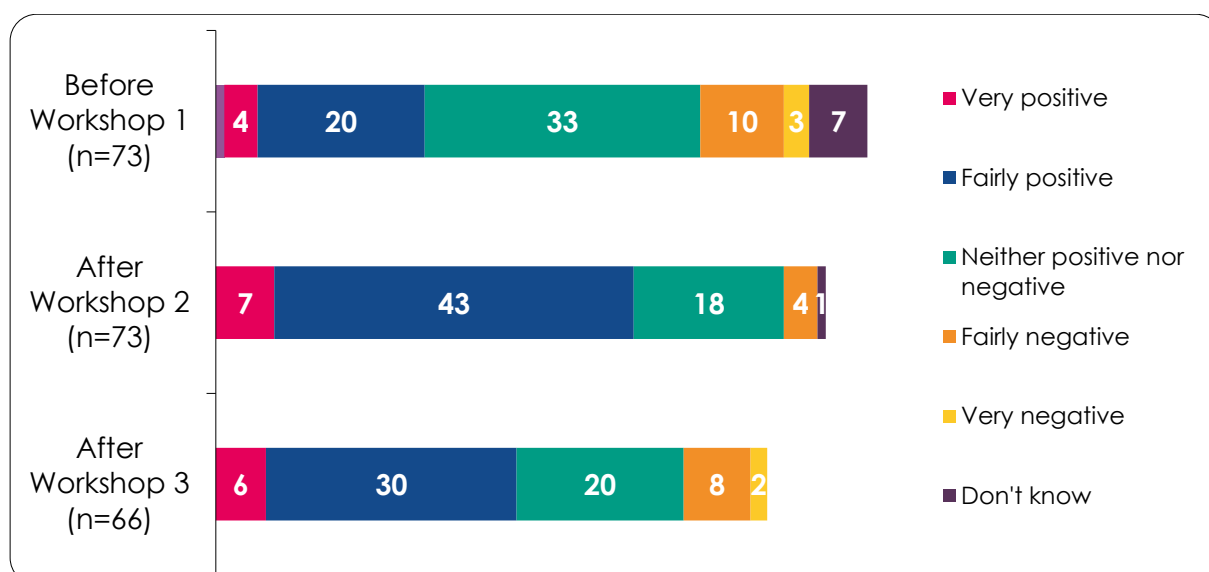




Figure 13: Participant responses to the survey question 'I feel I have control over the personal information that I have shared online' before the first workshop and after the third workshop

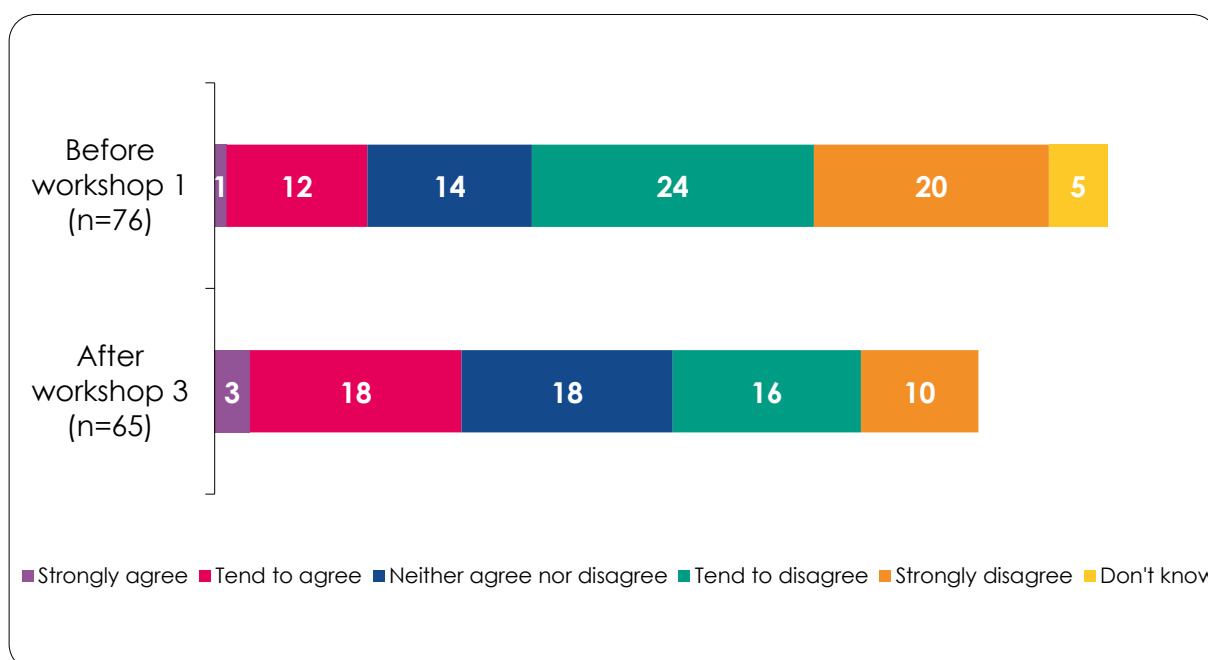
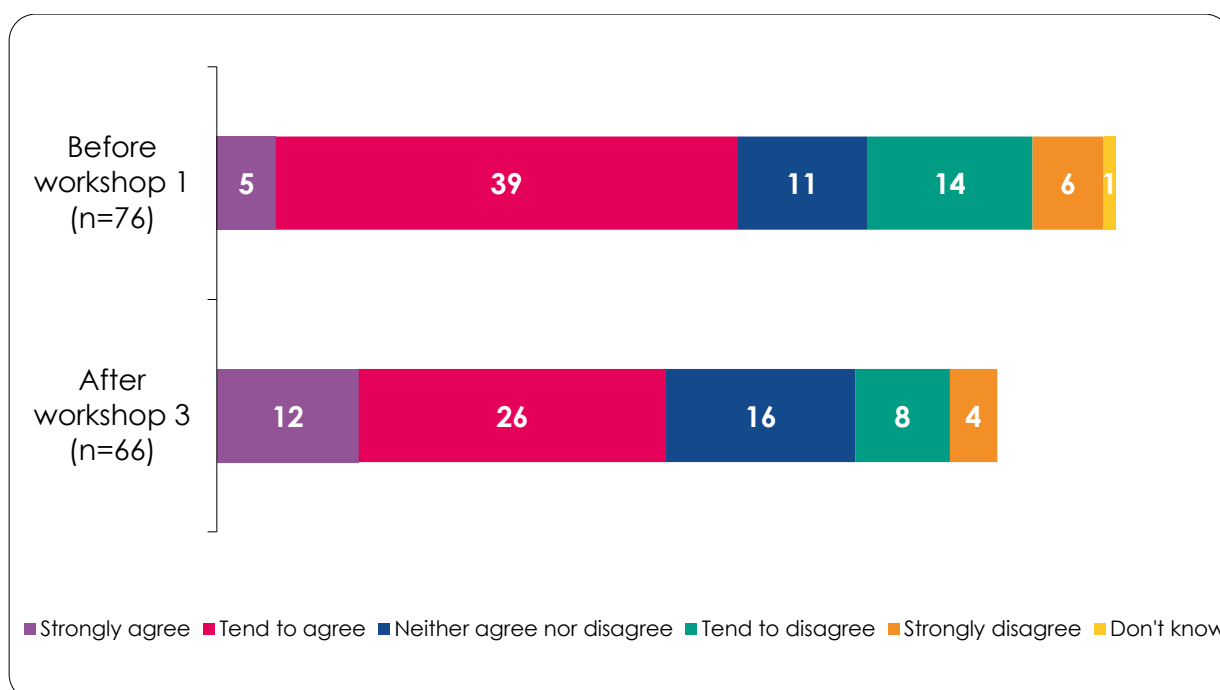


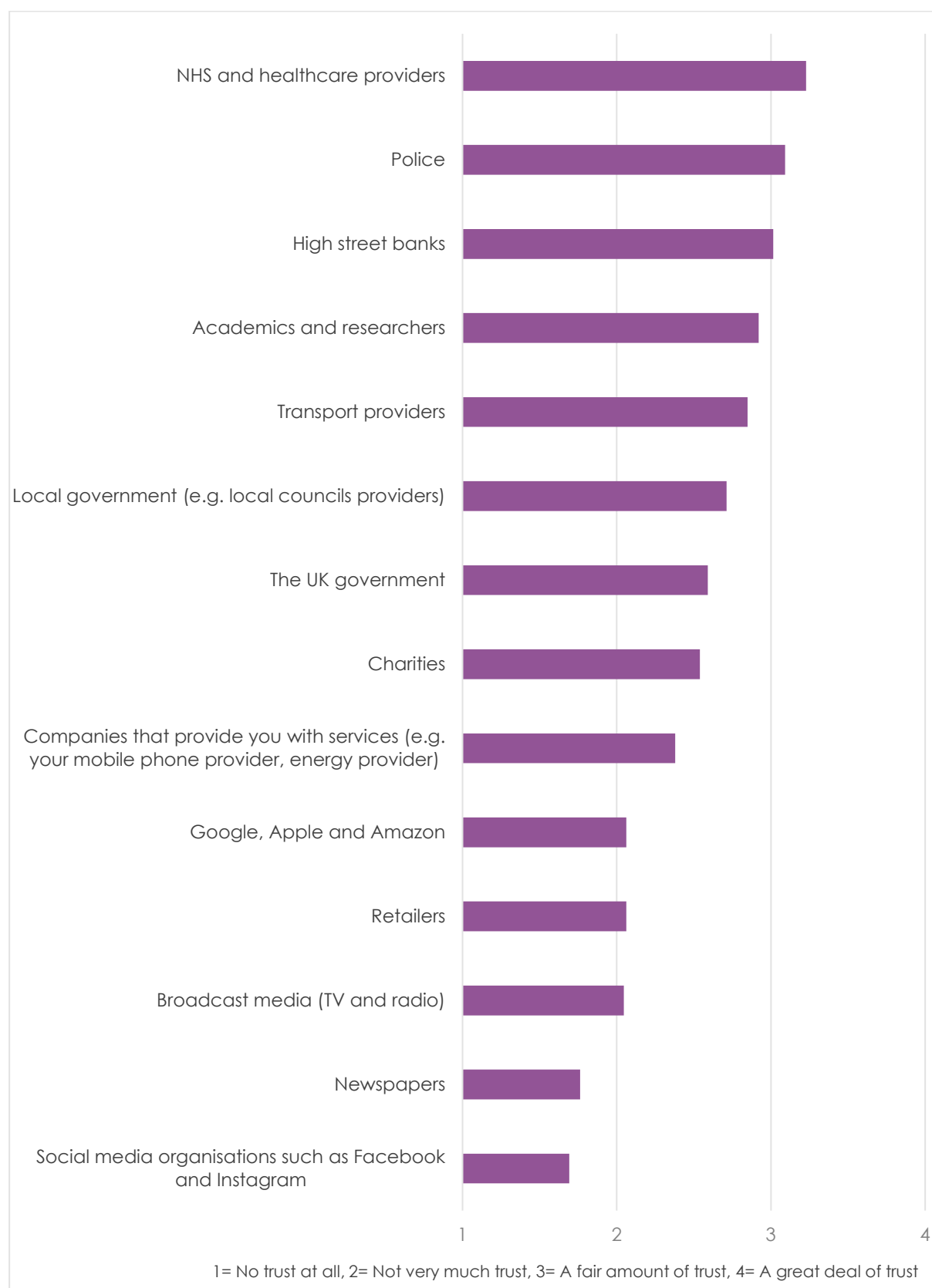
Figure 14: Participant responses to the survey question 'I am happy sharing my personal information online if there is something of value in it' before the first workshop and after the third workshop



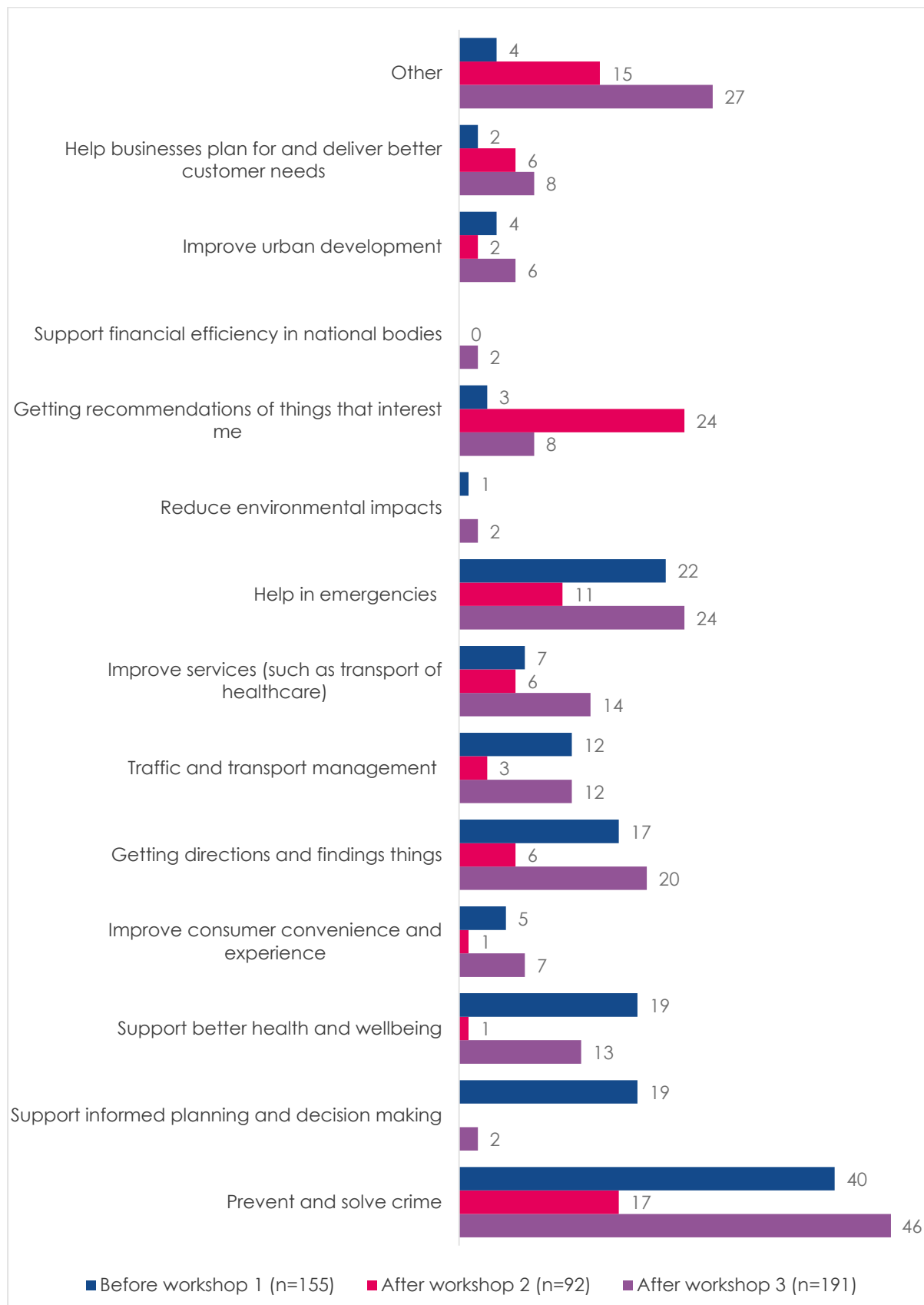
**Figure 15: Participant responses to the survey question 'How acceptable or unacceptable do you think it is to use location data for...' before the first workshop and after the third workshop**



**Figure 16: Mean participant responses to question 'How much trust, if any, do you have in each of the following types of organisations to use your location data in a responsible way?', asked in the final survey after the third workshop**



**Figure 17: Number of participants that selected the listed opportunities of location data use among their top 3 preferences at different points in the dialogue**



**Figure 18: Number of participants that selected the listed risks of location data use among their top 3 concerns in survey at different points in the dialogue**

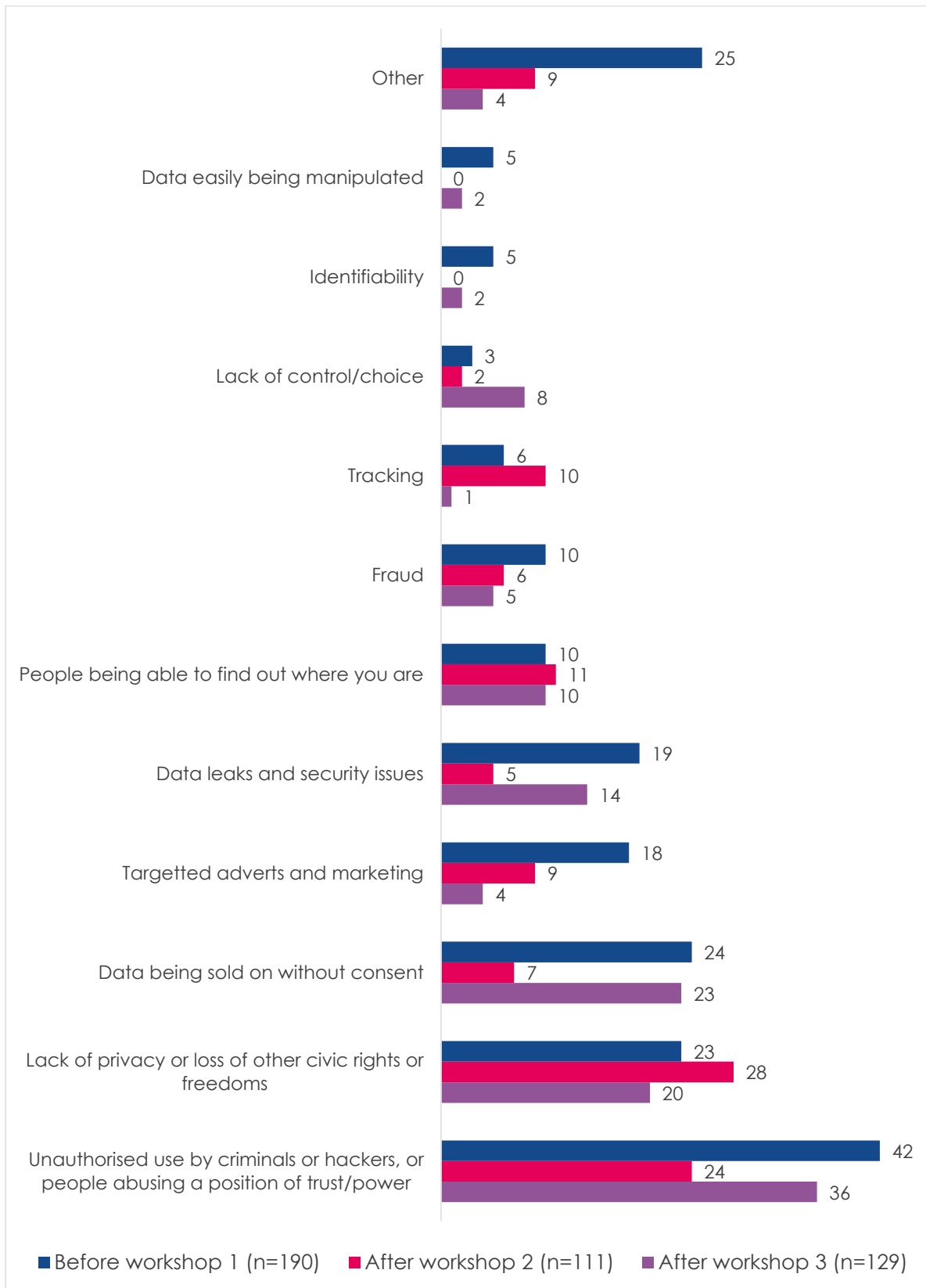


Figure 19: Participant responses to the survey question 'How often, if at all, do you think location data about you is collected and used?' before the first workshop and after the third workshop

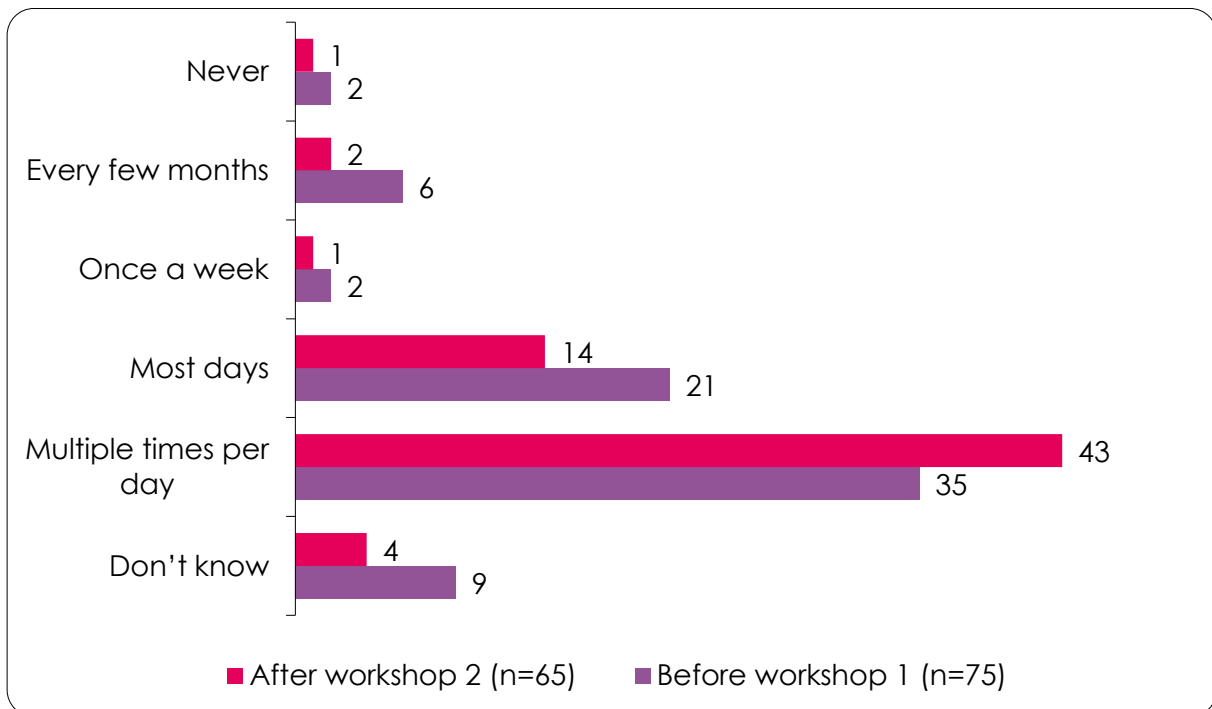


Figure 20: Participant responses to the survey question 'I always accept requests to share my data online (e.g. cookies on a website)' before the first workshop and after the third workshop

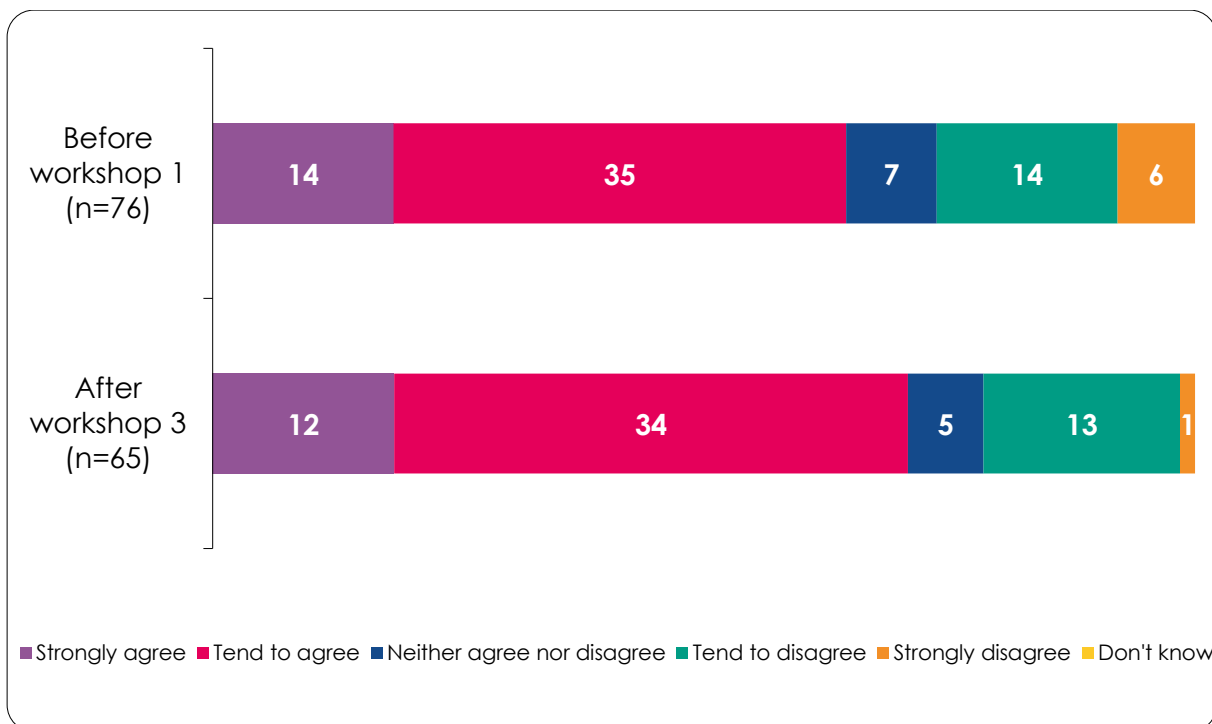
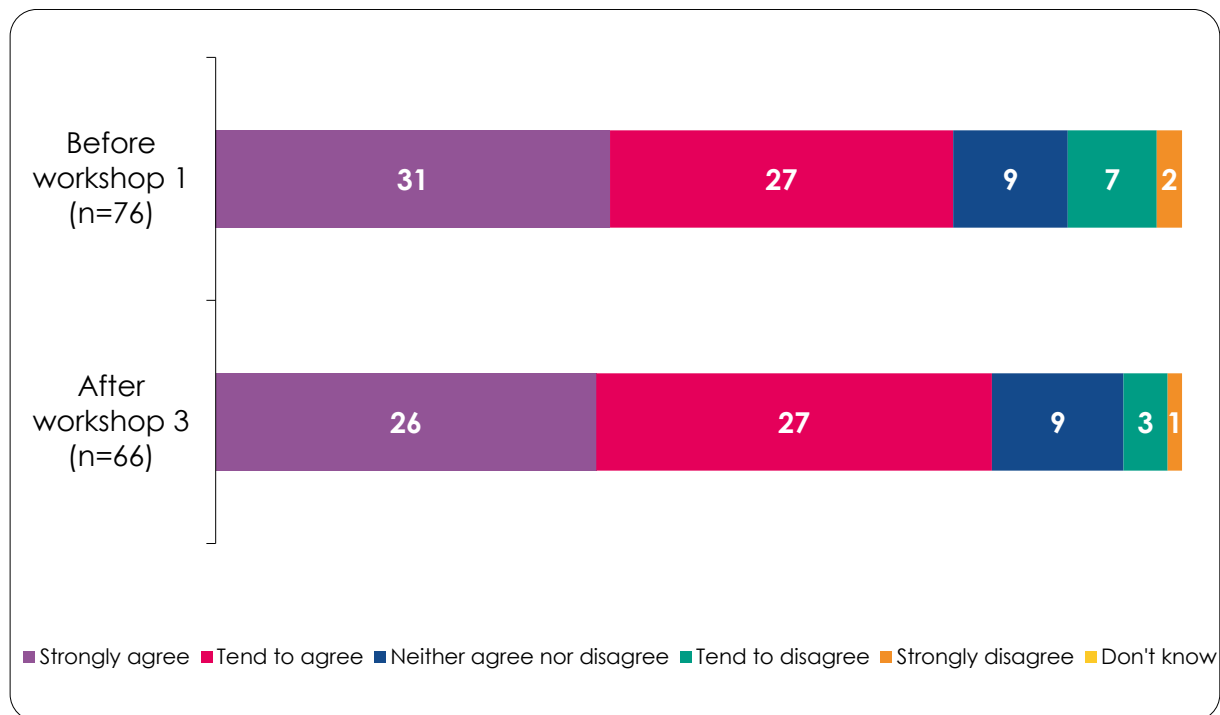
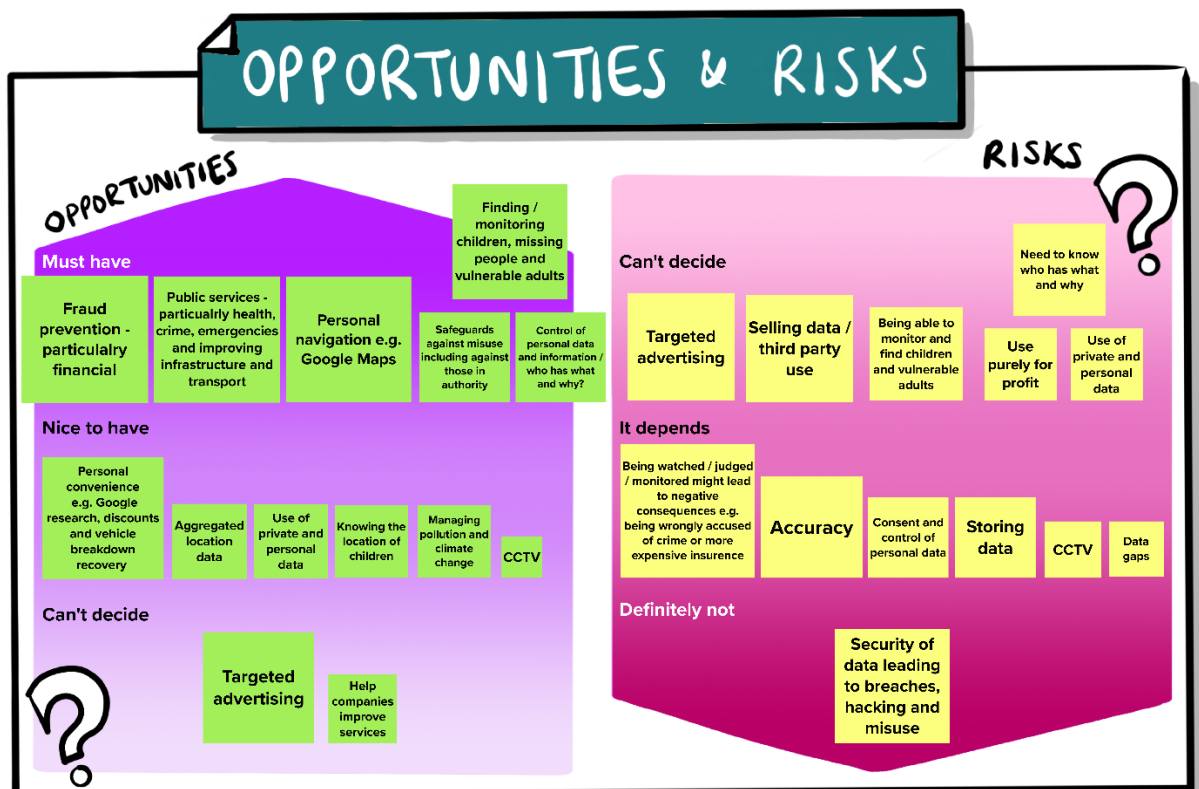


Figure 21: Participant responses to the survey question 'I am concerned about sharing my personal information online' before the first workshop and after the third workshop



## Workshop activity data

Figure 22: Summary of all groups' mind-maps of what they perceive the opportunities and risks of using location data to be, from workshop 2



## Recommendations for trustworthiness

Through group discussion in workshops 3 and 4, and individual tasks through the online platform; participants were able to make several recommendations for policy-makers and data collectors that they feel may improve the trustworthiness of location data collection.

**Table 11: List of participants' recommendations for data collectors to improve trustworthiness**

Recommendations for trustworthiness
■ Publicising when there is a fault
■ More transparency
■ Simplicity and clarity for public
■ Keeping informed about how data is stored
■ Clearer support to navigate choices
■ Using blockchain technology to store data
■ Clear consequences for perpetrators of data hacks
■ A data code of conduct
■ Less small print
■ A national standard / governing body
■ Shift in Government priorities from too pro-business to more emphasis on individual
■ More choice available
■ More information about legal processes
■ Consequences for aggregate data breaches
■ Prevent access for data that companies do not need
■ Simple T&C's
■ Incentives for individuals sharing data
■ Continual update of Location Data use
■ Re-requesting permission for new uses of data
■ Acceptable and adequate preliminary information
■ Neutral third-party review (e.g., Trustpilot)
■ Assurance of good management of data
■ Ban selling of data to third parties
■ Upon payment, receive a warning that card information is being used to track Location Data
■ Consistent or uniform text in data sharing agreements
■ Clarity of commercial benefits
■ Penalties for not being removed from databases
■ Data may only be kept for the specific use intended
■ Clearly stating up front what data will be used for and who will see it



■ Widespread GDPR training
■ Sharing data outcomes with individuals
■ Reduce the invasiveness of location driven adverts
■ Anonymisation of data as default
■ Increase the level of security and encryption necessary to hold data
■ Monitoring the track record of companies using and storing data
■ A 3-strike system for companies who lose or misuse data
■ Options to have terms in different languages
■ Companies must divulge their location to you before sharing
■ An icon or seal of approval on websites to show companies are 'data friendly'
■ All data should be help by the government
■ Tougher penalties for data breaches
■ Sharing specific locations should be banned on social media
■ The 2nd party who sells data to a 3rd party is legally responsible for their use of the data
■ Different data terms for different sized companies



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