

Report to Innovate UK

Evaluation of Future Cities Dialogue



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Acronyms

AG	Advisory Group
AV	Automated Vehicle
BAME	Black, Asian and Minority Ethnic
BEIS	Department for Business, Energy and Industrial Strategy
DA	Devolved Administration
FFF	Forum for the Future
IoT	Internet of Things
TOR	Terms of Reference

1. Introduction

This evaluation report has been prepared by URSUS Consulting Ltd on behalf of Innovate UK and Department for Business, Energy and Industrial Strategy (BEIS) in relation to a project to explore opportunities for developing integrated urban systems in the future and what these might mean in terms of opportunities and risks supported by Sciencewise¹.

The project involved a collaboration between two contractors in designing integrated futures scenarios for the UK's cities in 2040. Forum for the Future (FFF) was responsible for developing scenarios for six discrete future city systems which were then developed into three possible scenarios for how future cities might integrate these six systems. The views on how individual systems might develop and how integrated cities of the future might work and look were developed with inputs from a deliberative dialogue process. This process, run by Ipsos MORI, involved citizens from three UK cities (London, York and Glasgow) in workshops and a summit event and involvement of a wider public in an online public forum.

The futures work and citizen dialogue planning started in August 2015 and finished in May 2016. The evaluation has run for an additional eight months while the resulting reports have been finalized and disseminated.

1.1 Background

Innovate UK is the UK's innovation agency and works with people, companies and partner organisations to find and drive the science and technology innovations that will grow the UK economy.

With three quarters of the UK's and two-thirds of the world's populations projected to be living in cities by 2050, the urban context is where the sustainability challenges of the future, such as inequality, food security, climate change, air quality and water scarcity, will be most keenly felt. Addressing these challenges not only has the potential to improve human wellbeing and help cities function within environmental limits, but presents a significant commercial opportunity for UK business, both within the UK and for export. The market for innovative technologies is huge. Futures Cities Catapult (2015) report that global market for 'integrated cities'² solutions will be worth £200 billion by 2030 and will require a further £40 trillion investment in hard infrastructure globally to support it over the next 20 years.

An earlier study commissioned by BIES (2013)³ looked specifically at the potential market for 'smart city' solutions which apply digital and physical technologies to address social, environmental and economic goals and estimated the global market at \$408 billion by 2020 for five vertical sectors - energy, water, transport, waste management and assisted living services. Business opportunities

¹ Sciencewise is the UK's national centre for public dialogue for policy making involving science and technology issues, and is funded by the Department for Business, Innovation and Skills (BIS). See www.sciencewise-erc.org.uk Public dialogue brings together members of the public, policy makers, scientists and other expert stakeholders to deliberate, reflect and come to conclusions on national public policy issues.

² Resolving complex challenges by considering a city's multiple systems simultaneously, rather than focusing on how to fix a particular element. A city systems approach considers the city as a system and designs solutions to have maximum positive impact while minimising negative unintended consequences.

³ How can the UK innovate for the world's cities? www.futurecities.UKTI and the <http://futurecities.catapult.org.uk>

identified for UK businesses included energy management systems, smart appliances, smart metering, smart grid, micro generation and Electric Vehicles etc.

Innovate UK's Urban Living Innovation Programme (ULIP) team⁴ was an Innovate programme tasked with exploring how the UK can participate in and benefit from the economic, social and environmental opportunities associated with this market. Among other things the team worked with thirty UK City Councils to carry out feasibility studies for a Future Cities Demonstrator Programme. Feasibility studies identified opportunities to integrate new developments and city systems to deliver more efficient services (such as transport, water and energy), promote investment and jobs and tackle issues such as climate change, waste and resource use. Each of the demonstrator cities is expected to engage with businesses and academic institutions to identify opportunities for commercialisation of new technologies. While a number of individual cities – such as Cambridge⁵, Bristol⁶ and Milton Keynes⁷ - have developed specific ideas for integration, it is not yet clear which aspects of urban systems will most benefit from being integrated making them more sustainable and cost efficient and which opportunities could actually heighten instabilities in city systems. It is also far from clear how citizens – as opposed to policymakers and businesses - will view potential solutions in terms of making cities places they actually want to live, work, learn and invest in.

1.2 Objectives of the project

The objectives of this project were therefore to explore potential opportunities for future city integration which will maximise the interests of all. The initial objectives were:

1. To study the opportunities for integrated city systems, including future visions, citizen engagement and inter-disciplinary stakeholder collaboration and co-creation.
2. To inform the development of the Urban Living Innovation Programme, especially the resulting competitions for funding, by providing citizen insights on possible future scenarios.
3. To enable Innovate UK to learn about the practice of designing and delivering processes of public dialogue to generate useful conclusions for sustainably integrating urban systems that reflect the public voice.
4. To provide Innovate UK with a clearer understanding of the opportunities and risks of system integration in urban areas and the citizen response to different options.

Specifically the project was intended to help the Urban Living team and other Innovate UK teams such as energy, waste, water, transport, health and the built environment to understand future opportunities and challenges by envisaging scenarios for integrated urban futures in 2040 and identifying 'needs' which might not yet exist. The project has involved three different audiences: expert stakeholders and policy makers; Innovate UK internal teams; and UK citizens.

The work has involved a series of futures workshops with expert stakeholders, based on futures research that examines both hard (technology, infrastructure) and soft (governance, cultural norms) factors and which then fed into two rounds of deliberative workshops with the public to increase

⁴ This research was commissioned via the Urban Cities Living team, but at the time of writing, this team has been incorporated into the Infrastructure Systems team.

⁵ Visions of Cambridge [http://www.csap.cam.ac.uk/news/article-csap-and-forum-co-lead-cambridge-foresight-future-/?utm_source=Newsletter&utm_campaign=17e7c4ad35-September 2015 newsletter&utm_medium=email&utm_term=0_4809685dba-17e7c4ad35-30549109](http://www.csap.cam.ac.uk/news/article-csap-and-forum-co-lead-cambridge-foresight-future-/?utm_source=Newsletter&utm_campaign=17e7c4ad35-September%202015%20newsletter&utm_medium=email&utm_term=0_4809685dba-17e7c4ad35-30549109)

⁶ Bristol. <http://bristolgreencapital.org/events/supporting-corporate-leadership-for-healthy-urban-development/>

⁷ Milton Keynes 2050. <http://www.mkfutures2050.com/>

understanding of what people living or working in cities want and so what ‘good’ or ‘bad’ integration looks like.

The more detailed objectives for the different components of the project and how they have been met are discussed in Section 4.

1.3 Changing context for the project

Since the project was conceived there have been a few changes in the policy and institutional context which have led to slippage in finalising the reports and launching the outputs as follows:

- The change in government policy priorities since the Brexit vote mean that greater emphasis is now placed on the development of a UK Industrial Strategy led by BEIS. Since the Sciencewise programme finished at the end of March 2016, BEIS has also taken on responsibility for managing remaining projects such as this one.
- Since June 2016 Innovate UK has undergone significant organisational change: the Urban Living Team no longer exists but the individuals involved have become part of Innovate’s Infrastructure Systems team. This is focused on growing the major global market opportunities that come from optimising transport and energy systems, and from integrating these with other systems such as health and digital in the urban context. Organisational change means that the opportunities for influencing Innovate Strategies and work programmes have changed significantly since the beginning of the project.
- This project has become a ‘gold campaign’ – which means that a larger group of individuals have been involved in agreeing the reports and dissemination strategy.

As the end date for this launch and dissemination process was unclear the Innovate Project Manager and evaluator agreed that it made sense to complete the evaluation before the formal launch of the reports.

2. Dialogue

2.1 Governance

Advisory Group

A 'virtual' Advisory Group (AG) for the overall study was convened by Innovate UK, made up of 11 members designed to provide a good mix of central and city government policy makers, business, civil society and academic interests. Prior to recruitment all members were interviewed by either Innovate UK or FFF during the initial phase of stakeholder engagement in order to explain the project, their intended role and the likely time commitments. Interviews also identified interests and potential to contribute to futures exercises in the selected city systems. A full list of members is shown at Annex A.

The agreed Terms of Reference (TOR) for the AG were:

- To ensure that the framing of the research was far reaching, accessible, and targeted all relevant stakeholder groups, including review of the citizen dialogue workshop design;
- To ensure the dialogue material was comprehensive, balanced and accessible;
- To comment on the stimulus material to be used in the citizen workshops; and
- To participate in the expert stakeholder workshops and/or citizen dialogue workshops.

The AG was convened twice through 60 minute teleconference calls. The first meeting in mid December 2015 discussed the outcomes of the systems stakeholder workshops, the implications for the citizen dialogues and early process design and stimulus materials. The second in mid-January 2016 reviewed draft stimulus materials for the first wave of citizen dialogue workshops.

Initially the AG was also expected to review and comment on the final report and policy implications but, due to the changing institutional context and the time lag in publishing the report this has not been possible.

Core management team

The ULIP core management team, the futures and dialogue contractors (FFF and Ipsos MORI), the Sciencewise adviser and the independent evaluator attended an inception meeting in September 2015. The team then met regularly via fortnightly teleconference calls and face to face planning meetings over the nine months of project implementation to May 2016.

2.2 Framing of the dialogue

The methodology for developing futures involved a two-step process of examining and visioning futures for six independent urban systems which were used as the basis for bringing together three scenarios for future integrated systems. The choice of systems was intended to reflect: areas where Innovate UK has interest and expertise; are relevant from the point of view of integration; and that resonate with the public. A long list of potential sectors was identified through FFF's literature review, discussions at the inception meeting and review of other resources such as Ipsos MORI's Issues Index⁸ which provided additional context of what the British public think are the most important issues facing the country – not just in urban areas - including immigration, health and employment.

⁸ <https://www.ipsos-mori.com/researchpublications/researcharchive/3614/Economist/Ipsos-MORI-August-2015-Issues-Index.aspx>

The long list included health, education, food, energy, transport, water, waste, built environment, housing, the natural environment and urban greenspace and Information Technology (IT). After discussions with other Innovate UK teams it was agreed to treat built and natural environment and IT as cross cutting themes allowing a focus on the following six discrete systems: health, food, energy, transport, water and waste.

A number of different approaches were discussed in terms of locations, numbers of participants and length of citizen dialogue part of the programme. Options within the available budget ranged from convening one large group in one location for two events, to half a dozen smaller groups convened just once in six different locations. The core management team agreed that the most appropriate approach to address the complexity and breadth of the subject and the wish for perspectives from different types of city was to convene three medium sized groups (25-28) in three city locations for a day and then to bring all participants together in one location for a final summit.

The choice of city location for the citizen's dialogues was based on criteria agreed at the start up meeting as follows: a mix of sizes; geographic spread including a non-English city; range of economic growth contexts; at least one facing devolution as an issue; and at least one Innovate UK Demonstrator city. The final selection was made by the core management team and included London, Glasgow and York for wave 1 events and London for the final summit event.

2.3 Detailed Tasks

Recruitment of participants

In total 75 participants were recruited of whom 73 took part in three face to face day-long public dialogue workshops in London, York and Glasgow. 61 of the 73 attended a Day 2 summit event in London. The recruitment was managed by Ipsos MORI's in-house recruitment teams. The workshop participants were recruited on-street using specified recruitment criteria which included being a UK resident. Quotas were set for gender, age, working status, ethnicity, and social economic status to ensure that the sample of participants reflected a broad range of the city's population. Recruiters were also asked to select a variety of people from the inner parts of each city as well as from the suburbs (or outer boroughs of London), to explore their experiences of travelling in and out of the city centre for leisure and work. The full recruitment criteria, screener and quotas are included in Ipsos MORI appendices.

All participants were given a staged cash incentive to attend the workshops and for participating in the online community. The incentive was phased so that a higher amount was given after the second workshop, to help reduce attrition between the workshops. Travel and accommodation expenses were covered for participants from York and Glasgow to take part in the London summit.

Stakeholder engagement and development of stimulus materials

Stakeholder engagement in the form of one to one interviews and six systems workshops were an important part of the project and were undertaken at three different stages of the project by FFF.

FFF led a series of expert interviews with the Innovate UK with 21 stakeholders on the basis of a semi-structured interview protocol. This included both members of the AG and topic experts who were also invited to the systems workshops and included colleagues from other Innovate UK teams. Interviews were designed to map possible future trajectories of city systems in 2040.

Over a three week period between November and December FFF then ran six separate day-long system workshops, each dedicated to one of the six systems. Each workshop was attended by 15-25 experts including Innovate UK, members of the core management team (Ipsos MORI and URSUS) and Advisory Group members.

Each workshop followed the same format. An initial warm up activity (changes in cities in the last 30 years), then a presentation and discussion on the key characteristics and boundaries for the specific system, followed by group work to identify the most important drivers for change in the topic area using prompt cards and plenary discussion of why these drivers are critical and others less so. The afternoon sessions used small group work to develop four alternative futures (2040) for the particular system in response to possible outcomes of three randomly chosen drivers (e.g. resource scarcity, an ageing population and major investment in big data and technology). These futures were explored in relation to each other to ensure that no highly likely scenario had been omitted. The final exercise identified potential linkages and synergies between the specific system and the other five being considered. The feasible future outcomes were refined by FFF into three or four coherent and distinct outcomes per system as summarised in *Table 2.1*. Which were the main stimulus material for Day 1 of the citizen dialogues.

Table 2.1: Summary of the Futures Scenarios Considered for each of the Six Systems

Outcomes				
Food	High Tech & Functional	High Tech Globalised Supply	Government Keeps Me Healthy	Pulling Together Locally
Healthcare	Open Data Platforms	Remote Healthcare	Targeted Healthcare	Private Dominates
Transport	Me Mobility	Two-Tier Town	Regional Renaissance	Carpool
Energy	Big Power	Intercity Trading	Renewable Communities	
Waste	Patching Things Up	Repurposing	Sorting Things Out	
Water	Community Patrol	Smart Water	Regulated Water	

Citizen Dialogue First Round Workshops

Three day-long (10:00 to 16:00) Citizen Dialogue events were carried out in London (16th January, 23 participants), Glasgow (23rd January, 26 participants) and York (23rd January, 24 participants). Over recruitment (28) in each location resulted in an average 25 attendees at each location.

The 6 hour days involved a mixture of presentation, plenary sessions and also the use of smaller break-out groups of 6-7 participants. Experts from Innovate UK, FFF and experts (participants in the previous round of stakeholder workshops) were on hand in the room to engage with participants, answer questions and provide their own thoughts on what the system/outcome might look like.

The day was split up into three main sections.

- **Introductions** to the project, the aim of the day and the people and organisations involved in it. A warm up discussion focused on participants' vision of their city in the future. An introduction by Innovate UK covered: Innovate's role, the project objectives and the role of participants; what is meant by 'systems'; and the role that experts had had in defining these systems.
- **Introduction to and discussion of the 6 systems** (3 systems for each breakout group of 6-7) and their outcomes. The aim was to understand what people wanted from each system in the future, what challenges it would pose, and what the benefits and drawbacks of the system outcomes. For each system a large print poster summarised what the system looks like today, key statistics and why it will need to change in the future. The facilitator introduced a number of system 'outcome' cards and discussed each in turn with the group. For each, facilitators probed what people felt about the outcome, what the pros/ cons might be, how it would affect someone like them or their families, and other groups in society and their overall preferences between outcomes.
- **Final Plenary** brought together all breakout groups to discuss the main principles underlying participants' views and whether any similarities in preferences could be drawn out. The aim was to

reflect on the systems and outcomes most likely to be important to them in a future city and which outcomes they would most like to see. Reconvened Citizen Summit

Reconvened Citizen's Dialogue Summit

All participants who attended the first round of citizen workshops were invited to attend a reconvened workshop held in London on the 27th February (12:00-16:30). In total, 61 participants attended the whole day: 22 from Glasgow; 20 from London; and 19 from York.

The objective of this summit event was to identify the potential risks and opportunities of urban systems integration based on analysis of three different visions or scenarios for future city integration. The three scenarios summarized in *Table 2.2* had been generated by FFF from the outputs and preferences of the first round of citizen dialogue workshops. Each illustrated different ways in which infrastructure system integration might occur in different political, economic and technological futures.

Table 2.2: Summary of the three Future City Scenarios Considered

Scenario	Key Aspects	Examples of technology
Repair and share	<ul style="list-style-type: none"> • Small, cohesive, self-contained communities • Water, energy and police services decentralized and managed by local authorities and local Cooperatives • Many city systems run by community initiatives e.g. waste and transport. • Innovation is community led • Health providers reward healthy behavior monitored by health wearables • Philosophy of living better with fewer, more durable goods, barter and sharing • but some communities are more resilient than others reflecting their access to resources 	<ul style="list-style-type: none"> • Distributed manufacturing technologies and digital platforms • Car pooling • Shared taxis • Health wearables • Solar and energy from community waste (e.g. anaerobic digestion)
Devolution revolution	<ul style="list-style-type: none"> • Federated system of governance with strong regional government that can raise taxes • Cities operate closely integrated health, transport, water and waste systems based on wide acceptance of data sharing • Strongly utilitarian ethic and huge focus on health and social care and influencing it through food, energy and transport systems • 'Desirable' behavior 'nudged' through subsidized fruit and vegetables and use of shared data 	<ul style="list-style-type: none"> • Driverless delivery vehicles • Mass transit systems • Synthetic meat • Remote health analytics • Smart appliances (bins, fridges, heating systems)
High tech, high choice	<ul style="list-style-type: none"> • Very small central government and low taxes provide very basic cost of living • Public services are minimal • A wide choice of other goods and services (including health and education and a smart grid for energy and water) provided by high-tech private companies for those that can afford them • Individuals sell or exchange their data to service providers • High levels of automation and correspondingly high levels of unemployment and inequality 	<ul style="list-style-type: none"> • Internet of Things • Smart grid • Driverless cars • Virtual reality (education & play) • 3-D printing (e.g. food) • Health Nanobots and online doctors

The day was split into four main sections:

- **Introduction and re-cap** on the objectives of the study and how outputs would be used.
- **Introduction and discussion of three scenarios.** Each breakout group (6 groups of about 10 each) discussed each of the three scenarios summarised above and considered what was and was not appealing about it, where the main opportunities for integration might lie, what the

social, economic or environmental pros/cons might be and how acceptable each scenario was considered overall.

- **A session on individual technologies.** A set of ‘technology cards’ stimulated discussions around how technology might fit into the future scenarios and where opportunities existed for additional innovation or integration of technology across systems. Groups discussed what they found appealing/of concern and the overall acceptability of each technology.
- **Examining scenarios from different points of view.** Breakout groups were asked to role play, considering each scenario as if they were either ‘tax payers’ (taking a financial focus), ‘citizens’ (taking an ethical focus) or ‘individuals’ (focusing on the needs of themselves and their families). Participants were then asked to rotate groups so that each group consisted of a mix of individuals taking on each role.
- **A final plenary** rounded up the day and ideas were shared between groups.

Online citizen dialogue

Before and after the summit Ipsos MORI ran an online community panel drawn from participants in the three workshops and 400 members of the general public recruited from its own Online Access Panel database. The later were recruited based on similar characteristics as the workshop participants, to provide a mix of urban and suburban residents, age and gender.

The panel ran for a month from mid-February 2016. The aim was to engage a broader audience and extend the research to cover different cities and regions and smaller towns. It further offered opportunities for participants in the workshops to elaborate on any views formed during or since attending the workshops. The workshop participants and online panel members completed similar but separate activities within the community including forums and questionnaires.

Three forums covered:

- **Ideas from the first workshop:** what excited them about the future for their city in 2040, what they thought might be better, what might be worse and what aspects of city life they wanted to remain the same.
- **Sharing thoughts on good and bad things that were happening in their cities today.**
- **Sharing photos of cities,** or news stories that illustrated what had changed in their world over the past 25 years, and where the use of technology had been applied in a good way.

Three questionnaires covered:

- **System outcomes.** A simplified version of workshop stimulus materials with questions on which systems they found most and least appealing, and the reasons why.
- **Scenarios** with questions on whether they could see the three workshop scenarios happening in their city, whether there were any gaps which technology could improve, what the most and least appealing aspects of the scenario were.
- **Technology cards** from the final citizen workshop: whether they liked or disliked these technologies and why, and which technologies were thought to have the most impact.

Policy Implications Workshop

The final event of programme was a policy implications workshop run by FFF which reconvened a stakeholder audience of about 30 individuals including Innovate UK staff, future cities experts and individual systems experts. The invitees included Advisory Group members and invitees at the first round of systems workshops. Small groups reviewed the three place scenarios, the views of the public as expressed through the summit event and the online community, and their own views on

the pros and cons of each. Afternoon sessions then examined what the implications of the different scenarios might be for technologies, businesses and policy makers and a session where stakeholders built their own visions for integrated city systems of the future.

Analysis and reporting

Discussions at the public events were recorded for transcription. A draft final report – an account and analysis of what was said at the four events and in the online community and pulling out shared themes – was circulated to the core management team on 17th May 2016. The report was one of the inputs to a final report for Innovate produced by Forum for the Future. At the time of writing both reports are at near final stage but will not be published or disseminated by Innovate UK until late March 2017.

3. The evaluation methodology

3.1 Aims

The aim of the evaluation was to provide an independent assessment of the public dialogues' credibility and its effectiveness against its objectives, including an assessment of its impacts. The evaluation ran from August 2015 to January 2017. The evaluation seeks to answer the following questions:

- Objectives: has the dialogue met its objectives? (Section 4)
- Good practice: has the dialogue met principles of good practice? (Section 5)
- Satisfaction: have those involved been satisfied with the dialogue? (Section 6)
- Governance: how successful has the governance of the project been, including the role of advisors, core management and the Sciencewise support role? (Section 7)
- Impact: what difference or impact has the dialogue made? (Section 8)
- Costs/Benefits: what was the balance overall of costs and benefits of the dialogue? (Section 9)
- Credibility: was the dialogue process seen as suitable and sufficiently credible for policy makers to use the results with confidence? (Section 10)
- Lessons: what are the lessons for the future (what worked well and less well, and more widely)? (Section 11)

3.2 Methodology

The evaluation involved document review, observation, quantitative surveys and qualitative interviews.

Document review

Documents were reviewed and evaluation comments submitted to the core project management team by email or in person on the following documents:

- Key written correspondence (email traffic and attachments) and working documents on process design such as choice of event locations, the recruitment brief, sampling and recruitment methods;
- Event design and learning and stimulus materials for the stakeholder engagement and the citizen dialogues strands of activity; and
- Review of project outputs including draft and near final reports.

Observation and meetings

The evaluators directly observed two expert stakeholder meetings (Future of Health and Future of Energy), all three Wave 1 Citizen dialogues, the citizen summit event and the final policy implications workshop. In addition evaluators observed two Advisory Group meetings and took part in face to face and teleconference meetings with the delivery team and Innovate in Swindon and London and in regular teleconference meetings (weekly or monthly depending on the stage of the project). Due to changes in the Sciencewise, government and Innovate policy context (see section 1) no Sciencewise wash-up meeting has been held or is planned.

Questionnaires and evaluation exercises

At the end of Day 1 in London, Glasgow and York we asked all participants (public and experts) to complete evaluation questionnaires. This was repeated for participants at the Wave 2 Summit meeting in London. The results of both sets of questionnaires are summarized in Annex B and quotes from the questionnaires are shown in italics in the following text.

Individual Interviews

Individual interviews were conducted at key points through the dialogue including:

- Informal discussions with policy makers from within Innovate UK and in key government departments attending expert stakeholder workshops;
- Informal discussions with a handful of public participants at each public dialogue event;
- Six semi-structured interviews with individuals from the core management team, AG and policy audience after the drafting of the dialogue report focusing on: whether the project has met its objectives; emerging impacts (expected and unexpected) on policies and processes; the robustness and credibility of the methodology; and the role and effectiveness of governance arrangements. Quotes from these interviews are also used in the text and attributed to: 'policy' (Innovate UK and Government departments) and 'stakeholders' (those who took part in events of the Advisory Group).

Reporting

Immediate reflections were discussed with the core management team after each of the public events. Initial analysis of participant's responses to the events was circulated electronically to the team after the Wave 1 and Wave 2 events respectively. Due to the changes in context and time delays noted above this final evaluation report has been prepared prior to the final publication of the FFF and Ipsos MORI reports.

4. Objectives

4.3 Project Objectives

The over-arching objectives of the Public Dialogue are to produce a futures study into the opportunities for integrated city systems, including future visions, citizen engagement and inter-disciplinary stakeholder collaboration and co-creation.

The four original aims of this project were:

1. To study the opportunities for integrated city systems, including future visions, citizen engagement and inter-disciplinary stakeholder collaboration and co-creation.
2. To inform the development of the Urban Living Innovation Programme, especially the resulting competitions for funding, by providing citizen insights on possible future scenarios.
3. To enable Innovate UK to learn about the practice of designing and delivering processes of public dialogue to generate useful conclusions for sustainably integrating urban systems that reflect the public voice.
4. To provide Innovate UK with a clearer understanding of the opportunities and risks of system integration in urban areas and the citizen response to different options.

These were then shortened to be more manageable as follows:

1. To inform the development of the Urban Living Innovation Programme (now Infrastructure Systems), its strategy, and future competitions.
2. To enable Innovate UK to learn about the practice of designing and delivering processes of public dialogue to generate useful conclusions that reflect the public voice.
3. To create future visions of urban living with citizen input.
4. To trial and learn from Open Policy, multi-stakeholder collaboration and new ways of solving inter-disciplinary challenges.

Table 4.1 summarises how different components were expected to contribute to achieving each of these objectives.

Table 4.1: Project objectives and contribution by different components

Overall project objectives (Innovate UK)	Futures scenarios Development (Forum For the Future)	Citizen dialogue around integrated urban systems (IPSOS-MORI)
1. To inform the development of the Urban Living Innovation Programme (now Infrastructure Systems), its strategy, and future competitions.	<p>Have evolved Urban Living team thinking in this area</p> <p>Demonstrate how this thinking is complementary to other Innovate teams</p> <p>Have a communicable set of outputs that will demonstrate Innovate UK's thought leadership in this area</p>	<p>Have evolved Urban Living team thinking in this area</p> <p>Have a communicable set of final outputs that will demonstrate Innovate UK's thought leadership in this area</p>
2. To enable Innovate UK to learn about the practice of designing and delivering processes of public dialogue to generate useful conclusions that reflect the public voice.	<p>Close involvement of Innovate team in stakeholder interviews with Innovate teams and other stakeholders</p> <p>Involvement of Innovate Project manager in design and delivery of systems workshops</p>	Close involvement of the project manager in the planning and delivery of the citizen dialogue events.

3. To create future visions of urban living with citizen input.	Generate materials that Urban Living can use in the citizen dialogue project strand Provide a robust understanding of the technical and social opportunities and risks of system integration in urban areas	Be able to clearly set ULIP's vision for sustainably integrating urban systems in a manner that reflects the public voice
4. To trial and learn from Open Policy, multi-stakeholder collaboration and new ways of solving inter-disciplinary challenges.	To incorporate citizen voice in future visioning exercise which clearly sets out ULIP vision for sustainably integrating urban systems into cities and societies	Have led a series of citizen dialogues both face-to-face and online Have a clearer understanding of the opportunities and risks of system integration in urban areas - not in quantitative terms, but in understanding the opportunities for integration, and the citizen response to different options; Close involvement in delivery of policy implications workshops

4.1 Participants

The project's objectives were presented at the first day of the citizen dialogues by Innovate UK/Knowledge Transfer Network representatives and again in the introduction to the second day. The evaluation at the end of the first day found that 97% of participants (74%, 55 strongly agreed and 23%, 17 tended to agree) that they were aware of and understood the purpose of the day (despite some participants reporting that on arrival they had expected a more conventional market research focus group). By the end of Day 1 97% (52%, 36 strongly and 45%, 31 tended to) agreed that they were confident that the events would inform Innovate UKs' thinking. By the end of Day 2 92% of the participants (51%, 31 strongly and 41%, 25 tended to agree) that the day's discussions should be useful to policy makers in shaping the type of city they wanted to live and work in. There was also strong belief amongst the majority of participants (88% strongly or tended to agree) that Innovate UK will actually use the outputs from the public dialogue to help improve cities in the future for those that live and work in.

4.2 Achievement of Specific Objectives

1. To inform the development of the Urban Living Innovation Programme (now Infrastructure Systems), its strategy, and future competitions.

The core project team and other Innovate stakeholders interviewed agreed that the project has started to meet this objective and that, although the final report will not be published and launched until March 2017, that the findings from the process and draft dialogue and futures reports having been fed into the Integrated City Systems and Infrastructure Systems thinking and work programmes since May 2016. This despite the major organizational change and staff turnover within Innovate UK. The team feels that the messages emerging about principles for integration – and particularly putting citizens at the centre – have fed into the overall Innovate UK strategy and will inform future spending on competitions. The extent to which this has happened will be clearer when the strategy to 2020 is published, as the format of the Delivery Plan for 2017 does not allow for much discussion of principles and values. External stakeholders interviewed are not yet in a position to judge the extent to what they heard from citizens has informed Innovates' thinking, but reported that the emerging messages did indeed reflect what they were learning from other processes such as demonstrator cities.

2. To enable Innovate UK to learn about the practice of designing and delivering processes of public dialogue to generate useful conclusions that reflect the public voice.

During the course of the study some 13 Innovate UK staff, four KTN and 3 Future Cities Catapult staff were involved in attending stakeholder workshops or citizen dialogue events. The small core Innovate UK team was closely involved from the design through the implementation of the process and established very good working relationships between Innovate and contractors. The team were closely involved in making key decisions about framing, choice of locations and group size, amount of material to cover, making sure it was visual and accessible and setting reasonable aspirations for how much they could get out of discussions. Innovate UK staff interviewed during the evaluation were very positive about the process and their ability to carry out similar projects in future with experienced contractors but without Sciencewise support. Members of the Innovate team reported *“We would do it again and would encourage others to [involve the public] if they have the resources”*

3. To create future visions of urban living with citizen input

The final report notes that *“Hundreds of people have been involved in this project, both expert and citizen, and their knowledge and insights have allowed us to create three coherent and plausible visions of how we could be living in 2040, and the sorts of businesses and technologies that we’ll be using”*. There was widespread agreement amongst Innovate UK and other expert stakeholders that the future visioning process – and particularly the involvement of citizens at the heart of the process – has resulted in a set of potential future scenarios which together contain many elements and insights that will be helpful to city planners and businesses in understanding the business opportunities and citizen’s hopes and fears around different technologies and hard and soft infrastructure options. Some interviewees felt that generally findings were unexpected and resonated strongly with findings from other processes. Others found that the involvement of the general public in shaping scenarios for individual systems and future places had provided surprising evidence on public reactions. For instance, the ‘share and repair’ scenario, which sustainability focused experts expected to be the most popular with the public turned out to be less popular because of the degree of commitment it required to a community in order to get goods and services in return and was seen by some as going back to the past. Equally the ‘high tech, high choice’ option was unpopular with many as it was seen as impersonal, isolating and leading to greater inequality.

Likewise the public’s reticence about some high tech solutions (such as drones) were surprising to some, but the hesitation about other enabling technologies such as the sharing of personal health data or scenarios which would lead to less human contact, few jobs and risks of increased inequality were less surprising.

There was general agreement amongst those interviewed that the principles for future city integration need to be communicated clearly in a way that is accessible and engaging. City administrations and solution providers will be interested to learn about the sorts of futures that could be on the horizon so that smart companies and cities of all sizes can start to think about integration opportunities and understand citizens’ views.

Stakeholder views on achievement of project objectives

- *“Nothing demonstrably new came out of the [expert stakeholder] discussions or workshops that added to my own expertise but involving citizens did add value” (stakeholder)*
- *“Has done this well – we know a lot more than we did previously about why integration is important, how it adds value and what it could look like” (policy maker)*
- *“Punchy, impactful, nuggets” (stakeholder)*

- *Good exercise but near final report not so well presented or insightful and at risk of squandering the work put in” (stakeholder)*
- *“Public’s input really changed scenarios and some of the research opportunities identified in the scoping phase were not included as a result – will really help us shape how we think about sustainability going forwards” (Core team)*

4. To trial and learn from Open Policy, multi-stakeholder collaboration and new ways of solving inter-disciplinary challenges.

Open policy making is about developing and delivering policy in a fast-paced and increasingly networked and digital world through. The project has so far been largely successful in trialing key aspects of Open Policy making.

The policy has used a highly collaborative approach so that policy is informed by a broad range of input and expertise and meets user needs. It has also tested and iteratively improved policy to meet complex, changing user needs and help to ensure that future cities policy can be successfully implemented. The process has brought together contractors from the future visioning and citizen engagement disciplines, involved a large number (.....) of expert stakeholders from across many disciplines (city planners, energy, water, food, waste, health, transport experts and technical and social innovators). It has also involved hundreds of members of the public in a deliberative dialogue process. Experts were involved in helping the futures specialists FFF generate a comprehensive set of potential future scenarios for the six systems, which were then deliberated on by a broad sample of members of the public through face to face workshops (75) and online community forums and exercises (400). Their views fed into the design of three equally plausible integrated city scenarios for 2040. The public had the chance to interrogate these scenarios and identify what they did and did not like about each and about specific technologies which might feature in different scenarios. This helped to surface underlying principles and values for citizen-centered future city development. Amended scenarios that were presented back to expert stakeholders fully reflected the public’s input and helped policy makers, businesses and city leaders to think about the implications for future policy and business opportunities. The extent to which the outcomes of the project can be used to test and iteratively improve policy to meet the complex and changing needs of people living, working and visiting cities in the future will depend on how effectively the outcomes are communicated to key audiences (see Impacts, Section 8). A final aspect of open policy making - namely applying new analytical techniques, insights and digital tools so that policy is data driven and evidence based - was less relevant to this dialogue project which has used established visioning tools and qualitative rather than quantitative evidence.

5. Good Practice

This section presents the evaluation findings on the design and delivery of the dialogue process and whether it has met a number of good practice principles including the choice of locations and mix of participants; the design of the workshops; the presentation of stimulus materials; professional facilitation; the involvement of specialists; and choice of venues and event management.

5.1 The choice of locations was clear and representation was of an appropriate scale and mix to provide useful results

Ipsos MORIs' in-house recruitment teams managed on-street recruitment for the citizen's dialogues. All recruits were UK Residents and living in York, London or Glasgow from both city centres and suburbs. Quotas were also set for demographic and economic criteria reflective of each city's population. Overall recruitment led to a good mix of participants in all locations which appeared to meet the recruitment criteria and provided a good mix of local demographics (age, gender and ethnicity) and socio-economic segments and educational levels. Participants in all three locations expressed very positive views about the recruitment process and 96% agreed (of which 68%, 51 strongly agreed and 28%, 21 tended to agree) that the process and advance details were well handled. Several also remarked *"There was a wide range of people from different areas and it was balanced"* and *"A solid cross section of society in York"* (participants). Experts who attended the day 1 events also agreed that the mix of participants was appropriate to enable a good discussion of the issues with one commenting that *"Surprising to find [such a good mix] in London"* and another that it was *"A good mix, an engaged group"*.

Our observation was that in York recruitment methods appear to have resulted in a slight over representation of white older men and a number of participants already knowing each other (some reported being asked to bring a friend to fill last minute drops outs). On the whole this did not affect group dynamics unduly but inadequate screening of last minute recruits did mean that one participant took up a lot of the group and facilitators' time and energy and had to be asked to leave before the end of the first day, although this was ably handled by the lead facilitator and team.

Lessons:

- Generally on-street, face to face recruitment and computer automated telephone recruitment methods are more likely to identify whether participants are able and willing to contribute to the discussions and have appropriate motivation for being involved. Last minute recruitment of friends or family should be avoided unless they have been adequately screened.

5.2 The workshops were well designed so that the design flowed and there was sufficient time for deliberation

The design and narrative for the two days was developed collaboratively by the core management team and presented to and discussed with the Advisory Group. From the scoping stage the core team recognised that the framing of the process would be a challenge in terms of the breadth and depth of material and issues to be covered in 2 one day workshops. . It was therefore agreed that each participant would not be able to engage with all 6 city systems on Day 1 as this would be too onerous and repetitive. The design therefore ensured that each group considered three systems in different combinations each with 3 or 4 possible 'outcomes'. However, design allowed for individuals to hear about the issues in other systems at the feedback to plenary and could consider

them in more depth during the online community forums. In the event 90% of participants reported that they were looking forward to exploring other systems through the online forum.

The delivery team were flexible in tweaking the design throughout the process. For instance, during the pilot Day 1 session in London it became clear that – in using the ‘drivers of change’ stimulus cards covering topics from climate change and resource scarcity, through demographic changes (migration, ageing population) to use of technology (big data, the internet of things etc.) – the opening sessions were trying to cover too much. Participants in London commented that they had learnt a lot about the challenges facing cities but after this first event changes were made to allow more time for other sessions. A simplified carousel approach, focusing on imagining how their city might change for the better or worse by 2040, was therefore built into subsequent sessions in York and Glasgow, which flowed better as a result.

Minor adjustments to the timing allowed for a full hour on each of the three systems and a well-structured final session to explore the groups preferred outcomes for each system. As a result 88% of participants agreed (47%, 35 strongly agreed and 41%, 30 tended to agree) that they had enough time to discuss the issues. On a couple of occasions we observed that the last outcome (scenario) had to be cut (particularly if there were 4 outcomes to consider) to get to the summary matrix and finish on time. A small minority (6 participants, 8% mainly in London) did not feel they had sufficient time to discuss the issues. Several participants also commented that there was a lot to cover and a lot of material to read and they would have been interested for some discussions to run much longer or to have more thinking time, although they understood the time limitations. One commented that *“I needed more time, but it was managed effectively”*, and another that *“These are such fundamental issues there could never be enough time or info”* while another felt that *“I would have liked to have more time to put my points though”* (participants). Experts tended to agree that timings were about right but that any one of the systems would have warranted further discussion.

Lessons:

- An experienced delivery team recognised early on that there was too much ground for all participants to cover all aspects in equal depth. A sensible compromise allowed all individuals to hear about all issues at a general level while allowing sufficient time for them to absorb and digest information to have an informed dialogue around a smaller number of systems and pursue their interest in others through an online forum.

5.3 The stimulus materials presented were balanced, accessible and engaging enough for the participants to act as informed citizens

Given the breadth and complexity of the topics it was important that the materials for the citizen dialogues were accessible, informative and clear and provided the right amount of technical, policy and regulatory detail without over burdening participants. It was also crucial that they were seen as impartial and well balanced between simplicity and complexity. The vast majority of participants and experts agreed that the stimulus materials were balanced, accessible and engaging.

The background material for the public dialogue stimulus materials was developed by FFF from the expert stakeholder workshops. The initial drafts were very comprehensive but inevitably too detailed, complex and wordy for presenting at the public events. The materials went through a number of iterations and stripped back as far as possible to animated images and photo montages as wall posters with supporting technical descriptions and background detail as handouts. Nonetheless, there was a great deal of information for participants to absorb for each system and scenario and because of this it proved difficult for participants to take on a very active role in presenting the material to their groups, and so this role fell to table facilitators.

Overall on Day 1 the majority of participants agreed (47%, 34 strongly, 45%, 33 tended to agree) that the information presented on the changes facing future cities on Day 1 seemed fair and balanced, with one participant commenting that *“The info made us think, debate and discuss”*. Specialists agreed that the information was good, but that in some areas *“it might be open to challenge on the facts”*. Participants also generally agreed (47%, 35 strongly agreed, 47%, 35 tended to agree) that the information presented on individual city systems and potential outcomes was sufficient and relevant. No one felt there was insufficient information.

A small number of participants (6%, 4) neither agreed nor disagreed while a few commented that some of the outcomes appeared either extreme or to incorporate some value bias (e.g. health outcomes) and experts agreed that the art work on occasions seemed to incorporate value judgements. The energy sector, seemed the most difficult for people to engage with and this may have been because it is both more technically complex and they knew less about how the sector is currently organised or about near future trends in energy use, mix and policy drivers. In contrast health, food, transport and waste appeared relatively easy for people to grasp based on their lived experience. As a result they found the challenges and opportunities for the future easier to comment on and form opinions about.

A few participants felt there was too much information on Day 1 (*“Less content would have improved the experience - too many topics”*) or that scenarios were not presented with consistency between different groups (*“The content around scenarios was ambiguous and needs to be uniformly explained in order to get more accurate responses”*). A few experts felt that more on the regulatory context was needed, while others felt that grounding the discussion too much in today’s context made it difficult for people to be really open to future technologies.

For the Summit on Day 2 a great deal of effort was invested in trying to get the right balance between visual presentation and the necessary supporting detail to allow all participants to feel sufficiently informed to express their views. The team developed large format photomontage posters of potential cities in 2040 and descriptions of how they might have come about based on a timeline of key events (political, economic, social and technological) which could have brought about changes from the current context. There were also supporting materials on ‘A Day in the Life of’ of each place to give participants a flavour of what living, working, studying and playing in that future would feel like. Further handouts described how each of the six systems (energy, water etc.) would be delivered under each scenario. Each group had the opportunity to consider each of the three scenarios in detail. In the afternoon flash cards of 10 technologies were used to stimulate discussions about what people liked or disliked about specific key technologies which featured in the scenarios.

There was unanimous agreement (57%, 35 strongly agreed while 43%, 26 tended to agree) that participants could see how the three scenarios reflected what had been said at the previous workshop and that a lot of their previous discussions were included in the three ‘worlds’.

The vast majority of Day 2 participants found the large format posters on the three different scenarios for future cities well balanced and comprehensive (56%, 34 strongly agreed while 36%, 22 tended to agree) with one respondent summarising a widely held view that *“The posters were good starting points for discussions and if we needed further information the facilitators had it”*. Others commented that the information was well presented, enlightening and thought provoking and one participant commented that *“It took a while to get my head around, but easy once I was there”*. *Most found most topics easy to follow and understand*. A tiny minority (3) disagreed commenting that *“The posters were very detailed but writing hard to make out on occasion”*, *“The graphics were a tad confusing”* or *“Hard to extrapolate much from the posters alone, unable to make strong informed opinion without more detail”*.

Again the vast majority (94%) of participants found the materials on future technologies easy to

understand and discuss (59%, 36 strongly agreed and 35%, 21 tended to agree). The two participants that disagreed found that there was a lot of information to digest in a relatively short session.

Lessons:

- A great deal of effort and design resource went into developing visual stimulus materials (six city systems, three place scenarios, 10 technology cards) and these were very well received by participants.
- Where wordy text was needed to provide further context participants found it easier to absorb through carousels and self-discovery in small groups rather than having facilitators read it out.
- Translating stimulus materials used for expert stakeholder groups to text for citizen groups requires substantial editing time.

5.4 The facilitator team was professional, well-briefed, consistent and unbiased and enabled all participants to make an active contribution

In each Day 1 workshop a team of 4 facilitators each managed a table of 5-7 participants which each covered three of the six city systems. For the Day 2 summits 6 facilitators each managed a group of about 10 participants. In some groups facilitators tried to get participants to present the key points for each system, but few were confident to do this when the subject was so new to them. Participants were unanimous in feeling that the facilitation was independent, professional and effective (78%, 57 strongly agreed and 22%, 16 tended to agree). The majority of expert participants also agreed (6 strongly, 2 tended to agree) while one remarked that *“some groups less engaged than others”* or that *“sometimes a bit too much ‘presentation’”*.

Our observation was that the facilitation was excellent with a good ratio of facilitators to participants, enabling warm and lively, but focused, discussions with good time keeping. All facilitators managed to present an unusually large amount of information and meet challenging time pressures on both Day 1 and Day 2.

Despite a number of strong characters who could easily have dominated, facilitators were able to ensure that almost everyone contributed and expressed their opinions in table groups or working in pairs. The lead facilitator adeptly handled a sensitive situation in York and ejected one disruptive participant very discretely and without upsetting other participants. As a result, by the end of Day 1 participants were very positive about having been able to contribute their views (72%, 53 strongly and 27%, 20 tended to agree) and informal enquiries by the evaluator confirmed that they continued to feel so on Day 2. The box below summarises some of their comments on the quality of the facilitation.

Lessons:

- A well prepared and experienced team of lead and table facilitators were able to provide continuity between events, meet the challenges of covering a great deal of technical content within their groups, meeting challenging time pressures and to deal sensitively with a few tricky situations with participants in a professional way.

<p>Views on facilitation</p> <p>Participants</p> <p><i>“The team leader was good at guiding our time and topic”</i></p> <p><i>“Well done to the leaders, they guided the discussion well”</i></p> <p><i>“Staff were really helpful and put us at ease”</i></p> <p><i>“Very professional, very comfortable”</i></p>	<p>Expert views</p> <p><i>“Maybe some could have been drawn out more as they were unconfident in speaking” (expert participant Day 1)</i></p>
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<p><i>"Very open and great facilitation"</i></p> <p><i>"All facilitators very helpful"</i></p> <p><i>"Most definitely professional but friendly"</i></p> <p><i>"I had my say"</i></p> <p><i>"Excellent"</i></p> <p><i>"[I was] given a chance to speak as a participant even if the leaders were maybe pressed for time at certain points"</i></p>	
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5.5 Specialists were involved to provide information and trust in the process

Some 14 specialists from Innovate UK, Knowledge Transfer Network and participants from the stakeholder system workshops, and representatives of Future Cities programmes took part in Day 1 events (8 in London and three each in York and Glasgow). Despite the different mix and number of specialists available in each location Participants were unanimously agreed (70%, 48 strongly, 30%, 21 tended to agree) that the 'experts' who took part were helpful in answering their questions and explaining how the findings will be used. In our observation specialist participants had been well briefed and were willing and able to take part in listening mode. They were very knowledgeable and made helpful inputs when invited to do so by the facilitators or answered participant's questions during the break. Some systems - such as water, transport and health - were better represented than others (energy) and this may have contributed to some participants feeling that some systems were more difficult to grasp. Participants noted that experts were really helpful and gave particularly useful answers on water. One participant also noted that in many areas *"other group members were very knowledgeable"* and they were able to learn from each other.

On Day 1 98% of participants agreed (69%, 51 strongly, 29%, 21 tended to agree) that they could ask questions easily and get helpful answers. The sessions observed by the evaluators gave many opportunities to ask questions and there were very few occasions where people didn't understand things, except in the case of more technical systems such as energy. One participant noted that *"[I] would have liked more access to some of the experts"*.

5.6 Organisation and Venues

As noted above almost all (96%) Day 1 participants in London, York and Glasgow agreed the advance details were well handled. For Day 2 all groups were reconvened in London and those from York and Glasgow travelled down the night before and stayed in the hotel where the workshop took place. Despite an unavoidable last minute change of venue for the workshop 93% of participants agreed that the arrangements for the second day in London were well handled (64%, 39 strongly agreed and 29%, 18 tended to agree) and many commented that the details they were provided were really comprehensive, that they were given plenty of notice and that the arrangements worked well. A widely shared sentiment was that this was *"a very well organised event"*. For those from Glasgow and York who stayed overnight (50, 82% of total participants) there was unanimous agreement that the overnight accommodation and food arrangements were more than satisfactory, with many commenting that both the hotel accommodation and food were excellent, and that for many they far surpassed their expectations.

Lesson:

- Almost all participants from Glasgow and York were able and willing to travel to London for the reconvened event. All participants really appreciated the opportunity to meet those from other cities and share their experiences and views. The additional costs involved in overnight

accommodation and travel were outweighed by savings in facilitator time and venue rental for running 3 separate events.

5.7 Online Community

The initial ITT and proposal made provision for an online community engagement exercise. The precise purpose and nature of this strand was left very open at the proposal, scoping and initial design stage. The online community was never conceived as a major strand of the project but rather an opportunity - at very low marginal cost - for workshop participants to examine systems and materials they had not explored in their groups (i.e. three other systems) and to open out the discussions on future cities to a larger group giving broader geographic coverage beyond the three selected cities.

After the Day 1 events the stimulus materials for the six systems were shared online. No new materials were developed but the workshop materials were pared back to reduce the amount of text, add call out boxes and screens and make the workshop-ready posters readable on screens. The convener ran three lightly moderated forum discussions around similar questions to those asked within the citizen dialogue workshops.

The online community ran for a month from a week before the summit. By the end of the first week (27/3/2016) 75% of summit participants had registered and found it easy to do so (27, 44% strongly agreed, 19, 31% tended to agree) while 18 had not because they had not received the link, had not been able to log on or were not internet users. A few members had been quite active by the end of the first week and 90% of participants at the summit reported that they would be interested in the opportunity to look at the other city systems that they had not had a chance to look at in the Day 1 workshops.

The online community continued to run until mid-March, three weeks after the summit. It fulfilled its purpose in involving a larger number of individuals, getting as many as 100 responses for a few exercises. This added a breadth of views from outside the three cities and some are quoted in the dialogue report. However, the response rate was lower than might normally be expected for a typical market research survey that the community members are more accustomed to taking part in. Some forums were more successful than others in generating debate: for instance participants in the forum on what people liked and disliked about their city, tended to generate new threads, such as discussions around housing and Wi-Fi/internet services. But those who had not been involved in the face to face workshops tended to find it more difficult to contribute views on the systems and scenarios than workshop participants.

Lessons:

- In order for online communities – particularly those drawn from groups more accustomed to quantitative or conventional market research exercises - to add value to citizen dialogue processes the overall purpose and how the results will feed into the process needs to be very clear.
- Online communities also need sufficient resources allocated to designing materials, setting up engaging exercises and forums and moderating discussions in order to add value to the face to face events.

6. Satisfaction

This section evaluates whether those involved have been satisfied with the dialogue process and covers the perspectives of the public, specialists and policy makers.

6.1 Participants

There was unanimous agreement amongst participants (54, 76% strongly agreed while 17, 24% tended to agree) that they were satisfied with the Day 1 event. There was widespread agreement that the event was well-organised and structured and enjoyable. Interesting, informative and thought-provoking were consistently used to describe the experience in all three locations, as shown in the Word Cloud below. All those informally interviewed by the evaluators (about 20) were looking forward to the next session. While many participants were exhausted by the end of Day 1 a few wished that they had been able to look at the other three systems they had not had the chance to look at and this helped to inform the choice of activities for the online forum.

Participants also described their experiences as enlightening, eye-opening and immersive. By the end of Day 1 almost all participants agreed that they had learnt something new about city systems and how they might change in the future (62%, 44 strongly agreed and 32%, 23 tended to agree). Only 4 participants were not sure or tended to disagree that they had learnt anything new, and these appear to have been mostly those who felt they already understood how these systems worked fairly well. In London the use of ‘change’ (drivers for the future) cards in the first session made many aware of the challenges – such as demographics, resource scarcity and climate change – facing future cities and many participants reported they had learnt a lot. In York and Glasgow (where the change cards were not used due to redesign) the self-reported learning was mainly about improving their understanding of the different systems – particularly energy and water which people reported they did not know much about – and understanding the compromises in terms of cost and fairness about how systems might work in the future. Potential technological solutions such as data platforms, the internet of things, medical or transport technologies did not appear to emerge as key areas of learning or interest from the Day 1 events.

In all three locations people enjoyed working in mixed groups and learning from each other. There was also a generally positive feeling that educating people and discussing city systems and related issues would lead to better futures and use of resources than not doing so, and that this therefore ought to happen more often. *“Fantastic day, really useful and makes you feel as though your ideas do matter in working towards a future that the community supports”.*

Very high participant satisfaction continued through Day 2 when, once again evaluation responses showed unanimous agreement that people were satisfied with the days’ events (80%, 49 strongly agreed and 20%, 12 tended to agree). High levels of satisfaction meant that almost all participants (57 out of 61 who answered this question) would like to be kept informed with progress on the project. A total of 82% (50 in total) also reported that they would be happy to be contacted again by the project team or evaluators. This figure is high compared to other Sciencewise dialogue evaluations in more specialist areas: it suggests there may be opportunities for Innovate UK to build a standing platform of informed citizens willing to be involved in deliberating about the pros and cons of future city scenarios and specific technologies in the future.

Participant's satisfaction with the event	
<ul style="list-style-type: none"> • <i>"Excellent overall. Thankyou! Can I do this again!?"</i> • <i>"Found it very enjoyable"</i> • <i>I have really enjoyed being part of this process</i> • <i>"Really enjoyed, though provoking and learnt a lot"</i> • <i>"Excellent opportunity"</i> • <i>"More please! keep up good work in getting people together"</i> • <i>"Very pleased with the event"</i> • <i>"I found this very enjoyable and it has changed my outlook about future changes"</i> • <i>"Very professionally led, each group facilitating, promoting and directing group"</i> 	<ul style="list-style-type: none"> • <i>"I have found the whole experience interesting and a good chance to make my own comments and be educated in this area, to some extent!"</i> • <i>"Raised awareness"</i> • <i>"Really enjoyed the whole experience of going to London and meeting so many interesting people"</i> • <i>"Some participants did not speak clearly"</i> • <i>"Thanks it was extremely interesting"</i> • <i>"Very educational"</i> • <i>"Very enjoyable"</i> • <i>"Very interesting, thoroughly enjoyable"</i> • <i>"If given the opportunity to participate again I'd be happy to do so"</i> • <i>"Good day and interesting"</i>

Participant's views on their involvement in all three Day 1 events



6.2 Specialist Audience

The specialists involved in the events were also overwhelmingly satisfied with the events (57% strongly agreed and 29% tended to agree) by the end of Day 1. One described the event as *"one of the rare days where I was pleased to stay to the end"*. Generally those interviewed welcomed the opportunity to meet the general public and engage with them around future cities issues. Most were impressed by the levels of interest and engagement of the participants and their considered responses to the complex systems and scenarios being considered. A few noted specific ways in which the stimulus materials, timing and facilitation could be refined and these were reflected in the material and delivery of subsequent events, and are also reflected in the toolkit materials which are an output of the project.

6.3 Policy Audience

The small group of policy makers interviewed during the evaluation reported that they were satisfied with the overall process and felt that both the expert stakeholder engagement and public dialogue elements had been well designed and delivered. Most were familiar with and had been involved with other future visioning exercises, but few had experienced a deliberative dialogue process with members of the public. A typical view was that *“the workshops involved a really diverse range of people. They were very well done”*. All those interviewed considered that the opportunities for participants to learn more about the challenges of future cities, the opportunities for integrated systems and to dig deeper into their hopes and fears from the scenarios and technologies, and what underlay them was really useful. One commented that *“putting citizens at the centre is necessary and this seemed to be a really good alternative to traditional community consultation”* while another appreciated that *“the principles that emerged were not particularly surprising but [the process] makes the whole citizen-led discussion much less abstract: we now understand it a lot more”*.

Lesson:

- High levels of satisfaction with the public dialogue process suggest that there is now an opportunity for Innovate UK to build a standing platform of informed citizens willing to be involved in deliberating about the pros and cons of city scenarios and specific technologies in the future. The evaluator would be happy to provide contact details for those participants who indicated that they were happy to be contacted again for this project in the future.

7. Governance

7.1 Advisory Group

As with all Sciencewise supported projects, an AG was set up for this project. Although this might not have been considered necessary for a conventional Innovate UK research project, the core project management team considered it was useful to have an AG in place playing a role of critical friend and making sure that stimulus materials were pitched at the right level.

This was a medium sized (11 members) 'light touch' AG which met virtually by teleconference. It was relatively quick to convene and less demanding on core management team and AG member time than traditional AGs that meet in person. Interviewees agreed it was well balanced in terms of government, academic/think tank, private sector and NGO membership and organisations based outside of the South East. Several members were futures experts and many had been involved in futures visioning exercises before. It proved more challenging to recruit and involve NGOs with interests across the range of urban systems. Invitees included Wellcome Trust, Young Foundation and Joseph Rowntree Foundation but their involvement was limited by resourcing issues and their more limited interest in all of the systems being considered.

The light touch nature of the AG seemed appropriate given that the complex rather than contentious nature of the content. The AG's role was to ensure that the framing and materials were accessible and engaging rather than auditing them for balance and bias. Time taken by Innovate UK and FFF to interview each of the potential members prior to convening proved helpful in explaining the purpose of the project, the AG role and individual member's specific interests and meant that less time needed to be spent on these items in the first meeting.

Individual AG members interviewed for the evaluation were enthusiastic about the project and four attended the expert stakeholder workshops, but none managed to attend the citizen dialogue workshops. Despite tight timeframes between first convening the AG and developing stimulus materials and detailed design for the first wave of citizen dialogues AG members interviewed reported they had sufficient time to review materials. A handful also helped to describe trends and shape scenarios through their involvement in the expert stakeholder workshops. One noted that *"our comments tended to be quite high level and general because there was so much material"*. (AG member). However, the virtual meetings made it a challenge to involve all individuals and get their time committed to the process.

7.2 Core Project management team

This was a relatively novel approach for a Sciencewise deliberative dialogue to be one element in a larger research and policy making process. A large part of the success of the process can be attributed to good working relationships and coordination within the core management team. In particular both contractors were willing to work closely with Innovate and each other throughout the process – for instance in attending and assisting at each other's events and in jointly designing, developing and printing up stimulus materials – and redesigning their proposals to ensure that responsibilities which had not been clearly delineated were shared between them.

7.3 Sciencewise role

Innovate UK interviewees reported that Sciencewise support was useful in co-funding the project, providing the structure for the ITT and recruitment of delivery contractors and evaluators. The commissioners reported that *“without Sciencewise input we would just have done a futures dialogue [with experts] – this made it much richer and the insights on attitudes to technologies was really helpful”*. Sciencewise support in attending early meetings, advising on the need for and role of the AG and taking part in the London citizen dialogues was appreciated. *“As a critical friend and voice of authority Sciencewise was great”* (policy maker).

In particular the Sciencewise adviser pushed for a more visual learning approach in developing stimulus materials for the public dialogues. This involved more time spent on sifting, editing, animating and designing materials to ensure that they were accessible to the public. Interviewees for the evaluation agreed that this resulted in a set of materials that most participants found very helpful, compared to initial outputs from the expert stakeholder workshops which were more comprehensive but too dense and wordy for the dialogues. Several interviewees noted that the end to the Sciencewise programme in April 2016 led to an abrupt end to Sciencewise support at the end of the process.

Lessons:

- Virtual and relatively short meetings were efficient in terms of core team and member time requirements and involving members from outside London (including overseas). However, the virtual meetings made it a challenge for the AG to really gel and to feel fully engaged with the process.
- Challenging time frames for developing stimulus materials for the citizen dialogues meant that AG members were only able to make high level comments on materials. However, this was appropriate for the nature of the dialogue which was complex rather than contentious.

8. Impact

This section considers the impact that the project has had or may have in the future in meeting Innovate UK and other stakeholder's wider objectives.

8.2 Impact on Participants

By the end of Day 1 almost all participants agreed (52%, 36 strongly and 45%, 31 tended to agree) that they were confident that these events will help inform Innovate UK about the type of future cities that the public wants to live and work in. This was a strong endorsement of the design of the day, the final feedback session in York and Glasgow and the opportunity to meet with other participants at the Summit meeting in London. Several participants reported that they felt the groups had represented a good cross section of people and that they had generated good ideas which deserved to be taken into account and they looked forward to meeting participants from other locations at the summit and hearing what experts had made of their contributions.

Although it was not an explicit objective of the dialogues several participants informally interviewed by the evaluators felt primed to make some changes in the way they lived in their cities, particularly in relation to food and resource use ("*Today has made me aware and I will make changes to my day to day living*"). On Day 2 many participants commented that they had found the whole process thought-provoking and that it had raised their awareness and they had learnt a lot. "*I have found the whole experience interesting and a good chance to make my own comments and be educated in this area, to some extent!*" A number of individuals reported that they had been thinking about recycling and waste, saving water and energy and about the environment in general. Others that they are now more aware of existing urban infrastructure, about the trade-offs between the benefits and (social and environmental) costs of future technologies and the choices which will need to be made.

8.3 Impacts on Policy Making

The Dialogue report concluded that "*the overall findings in the dialogue report show that participants support the idea of different systems within our cities becoming more integrated and the benefits that this could bring for citizens. They are interested in the process of how our cities encourage and make use of innovation, and there is an appetite for them to be involved in it to ensure the citizen voice is at the centre of the process*".

The Innovate UK team agreed with this finding and interviewees felt that the findings from the public dialogues have already started to feed into Innovate UK thinking and will continue to do so after the reports and materials are published in March 2017. There is some evidence of this in the Innovate Delivery Plan for 2016/17 developed as the first year of a 4 year strategy. The delivery plan simplifies Innovates' offer making programmes and funding clearer and easier to navigate. The Infrastructure Systems team now brings together three areas covered in the dialogue and futures process: connected transport; urban living and Smart Infrastructure; and energy. The description of what the team will deliver explicitly recognises that through the Innovate UK funding and connecting models, they aim to support disruptive infrastructure innovations that help create the vibrant communities, integrated transport and sustainable energy systems that will enable people to thrive in tomorrow's more connected societies. Interviewees underline that the dialogue messages are helpful in highlighting that the purpose of integration is not just creating commercial opportunities for UK companies but in developing approaches that work for citizens and reflect their needs and concerns.

Policy makers interviewed recognized the contribution of the project in developing and piloting an open process for involving people in integration / innovation discussions which could be re-run in different locations with potentially different results. Interviewees recognised that the process did not provide all the answers about how to achieve integration or specific technologies but that this was the start of a process. Some interviewees recognised strong resonance and synergies with other future visioning processes (such as Transport 2035⁹, and Milton Keynes 2050), but also some differences. But all agreed that a better understanding of people's hopes and fears around future cities and specific technologies needs to be an ongoing part of the integrated cities debate.

With this in mind the outputs of the project will be presented as a 'Toolkit' which will be available to other organisations such as city authorities and solution providers interested in carrying out their own future visioning exercises. The toolkit will comprise:

- **A short report** for wide dissemination that describes the process, the futures scenarios considered and highlights the principles for integration (resilient and evolutionary, tech-enabled not tech-centred, well-governed, sustainable, human-centred, globally linked, value networked and transparent) that have emerged and cross-cutting opportunities.
- **Supporting report detailing** the six systems outcomes and three integrated city scenarios.
- **A set of trends cards** used to stimulate discussion on challenges and opportunities in the future.
- **Workshop-ready posters** on the different systems, future city scenarios and technologies.

Views of Policy Makers about potential impacts of the project

- *"Helps to remind us that we are trying to establish an approach to integration that involves and works for citizens".*
- *"Ripples have spread out across the organisation and the messages are directly reflected in the Infrastructure Systems programme for the next 5 years".*
- *"Would like to see it launched so we get more public opinion and help to influence future competitions".*
- *"In its own right the work offers a lot of opportunities for different teams to identify cross-cutting and individual opportunities for cities and businesses to take forward".*
- *"Really interesting to see what the public did and didn't like about the transport and energy scenarios compared to [transport] scenarios we developed with only expert opinion".*
- *"Hearing views about technologies direct from the public is very helpful".*

The project reports will be launched by Innovate UK and Future Cities Catapult (FCC) on March 21st 2017. Invitees will include Innovate UK and FCC staff, the project team, specialists and some members of the public who were involved in the process and other policy makers and solution providers. FCC will also disseminate final reports or summaries through its SME, city leaders and academic channels. We understand that Innovate UK is considering a further study to look at the synergies between scenarios that have been developed for transport and energy and urban living.

Lesson:

- For reasons beyond the control of the commissioners and the contractors, good research risked being lost in the long time lag between completing project activities and publishing the final outputs. A high profile planned launch means the research now seems likely to have positive wider impacts, although it is too early to attempt to quantify these.

⁹ Travel in Britain in 2035: Future scenarios and their implications for technology innovation, 2016, RAND Europe for Innovate UK

9. Costs and Benefits

9.1 Costs

Financial costs

The total financial cost of the project was £272.8k of which the dialogue component accounted for 44% of the total budget and included delivery contractor fees, independent evaluation and expenses for citizen events and an online community consultation. The Sciencewise contribution covered three full day workshops with 25 participants each in London, Glasgow and York, a summit event for 63 participants in London, and a month long online community forum for more than 400 participants. The Innovate UK funding covered the inputs of Forum for the Future and included stakeholder interviews, 6 expert stakeholder workshops in London, development of system outcomes and scenarios and a final workshop with policy makers and expert stakeholder on implications and reporting. The remainder of the budget covered futures dialogue contractor fees and expenses. A small contingency and some reduction in ambition from the 150 participants initially required in the brief for the public dialogue was required to cover VAT, which had not been factored into the original budget.

The decision to recruit two independent contractors - rather than a consortium - meant that both had to refine their methodologies once they had viewed each other's bids. Neither contractor had fully anticipated or budgeted for the amount of coordination or joint working that would be required to make the process work seamlessly. In particular the responsibility for translating outcomes from the expert workshops into accessible stimulus materials pitched at the right level for the public dialogue workshops was a grey area. These challenges were overcome through good relationships established within the core management team and 'over-delivery' by the contractors. Potentially less project management time and effort would have been required if the ITT had required a consortium with overall delivery responsibilities, as these issues would have been addressed during the bidding process.

Contributions in Kind

Inputs in-kind were a key element in the success of this project.

Innovate UK Infrastructure Systems team and other internal teams made substantial time inputs to the project. This included project management time during the contracting, scoping (interviewing specialists, developing stimulus materials), workshop delivery and disseminating results phases (estimated at 62 days). Members of other Innovate teams also participated as specialists at the dialogue events (at least 8 person days) and as expert participants at stakeholder workshops (about 12 person days) and as interviewees during the scoping stage. We estimate total Innovate UK time inputs at about 90 days, equivalent to about £45,000 contribution in-kind (at an average daily rate of £500/day across all grades) or an additional 16% on top of the financial budget for the process.

Other contributions in kind included:

- About 12 days of AG members time: 11 AG members were initially expected to put in about 1.5 days each (an initial telephone interview, two teleconference AG meetings and document review), but in practice only half took part in meetings and so their time inputs were reduced, although four of the most active members did also attend a half day system workshop.

- About 65 days of other specialist stakeholder time: more than 100 specialists participated in half day systems workshops and the final policy implications workshops. In addition eight participated in one of the whole day public dialogue events.
- About 10 days of Sciencewise time: the DES was involved in the initial framing and development of the business case for the project and attended all core management team meetings and London public dialogue events until the demise of the Sciencewise programme at the end of March 2016.

9.2 Benefits

This section attempts to compare the financial and in-kind inputs to the project with the potential longer term benefits of the process. Despite the fact that the report has yet to be published and specific benefits cannot yet be identified, it is clear that the benefits could be considerable if they are able to increase the UK's ability to secure even a small share of the huge global markets for smart/integrated city system technologies (more than £200 billion globally by 2030) and if it can increase the effectiveness of Innovate UK's own £30 million investment in city systems innovation by focusing on opportunities that citizens find acceptable or solutions which address citizen concerns.

The impacts section highlighted, but did not attempt to quantify, the benefits that this project will have in providing insights to previous futures research that has been undertaken in areas such as transport and energy. The richness of the discussions with the public can help to highlight the 'soft' infrastructure which will be needed to ensure that the very costly investment in 'hard' infrastructure for integration technologies is warranted.

To take the example of a single technology – driverless cars - the public dialogues showed this to be one of the most popular of the 10 standalone technologies considered, and one of the technologies that the public expected to generate positive impacts on quality of life in cities. Overall the dialogues showed greater support for the technology – albeit amongst a small group but of more informed citizens – than recent quantitative surveys for the UK which indicated that only 39% of transport users would consider using driverless vehicles¹⁰. But most importantly the deliberative dialogue was able to help explain why attitudes to AVs may be somewhat polarised. On the one hand many participants recognised the potential benefits in reducing accidents, helping to eradicate drink driving, reducing driver stress, reducing congestion and making cars accessible to those who could not otherwise drive (e.g. those with disabilities). However, individuals also highlighted their concerns about the safety of the technology, legal responsibilities, and liabilities for accidents, the need to adapt infrastructure and behaviours of other road users such as cyclists and their concerns about the scale of potential job losses amongst professional drivers.

This one example appears to demonstrate the potential benefits of continuing to work with a representative group of the general public who understand the wider context of the challenges facing cities and are able to consider some of the trade-offs between economic efficiency and social and environmental concerns. The benefits of the process could be further amplified by continuing to involve this group of informed citizens to consider different city systems scenarios and technologies highlighted in Innovate UK's strategy to 2020.

¹⁰ Transport Systems Catapult, 2015

Lessons:

- The inclusion of a public dialogue component to a futures visioning exercise appears likely to deliver additional benefits to policy makers which justify the additional costs of this component. It is too early for the evaluation to quantify these benefits.
- The long time lag in concluding the programme and the decision to recruit individual contractors, rather than a consortium, increased the time and costs spent on project management and coordination and the risks of the project not delivering. In this case contractors were able to work collaboratively to deliver a high quality process.
- Further value could be added to the project at relatively low marginal cost by involving a group of the public participants in a citizen panel to bring the public voice to future work on integrated city systems and individual technologies.

10. Credibility

This section evaluates whether the dialogue process was seen by the participants and policy audience and specialists as robust and sufficiently credible for the results to be used with confidence.

10.1 Participants

A number of participants initially appeared surprised by the deliberative process, having expected that they were taking part in a more conventional market research focus group but most very enthusiastic about the process. By the end of Day 2 92% of participants agreed that the day's discussions should be useful to policy makers in shaping the type of city they wanted to live and work. Almost as many (88%, 54 out of 61 respondents) were confident that Innovate UK will use the outputs from this public dialogue to help improve cities in the future for those that live and work in them. Many were hopeful that the interesting and widespread views people had expressed would – if analysed well - be useful in policy making. *“Good discussions, hope some ideas are used”* and *“it will change the future”*.

The credibility that participants took from the process was evidenced by the fact that 88% (54 in total) reported they would be willing to be re-contacted by Sciencewise for other projects which is much higher than in many other projects evaluated by the team. Several participants echoed the comment of one that *“If given the opportunity to participate again I'd be happy to do so”*.

A small handful of participants were sceptical about how useful policy makers would find the outcomes, questioning whether they might be too superficial (*“Not enough depth”*) or too generic *“Instant reactions, no one solution is best for everyone”*. Several others pointed out the risks that the outcomes may be out of step with current politics and have limited impact on policy makers and the design of cities. One noted that *“the overwhelming consensus seemed to be in support of maintaining public services through taxation, yet [innovations] seemed to emphasise privatisation”* and another that in the end it will be *“Business needs versus community”*. However, no participants questioned the usefulness of the exercise, rather suggesting that more time and resource should be committed to digging deeper into the issues and the reflecting the diversity of views and potential impacts on different groups.

10.2 Policy makers and specialists

The overall process for this project was experimental in bringing a significant public dialogue component into a longer futures visioning exercise. The contracting approach was novel in inviting separate bids from specialists in public engagement and futures respectively, rather than seeking a single contractor for the work. The approach was effective in helping to address a common challenge in Sciencewise projects, namely finding contractors with both public dialogue experience and the technical/subject expertise who are able to really help shape the policy process without a great deal of input from the commissioning agency. The approach was also novel in pairing a not-for-profit think tank with a commercial market research company. In this case it worked well as both contractors were committed to working collaboratively and together were able to deliver a high quality process and outcomes.

The public dialogue aspects of the project were based on standard Sciencewise principles and methodologies for qualitative research. For budgetary reasons during the scoping stage the core management team debated the pros and cons of a number of different options within the available

budget which tried to balance the number of participants, geographical coverage and variation between locations, with time spent and depth of discussion around different issues. There was also considerable discussion about how many systems could be covered (reduced to six from the original eight) and how many of these systems and outcomes for each could be considered by each participant. The three options considered were:

- A: 2 full days in each of three locations with 25 participants each (75 total), supplemented by an online community;
- B: 6 day long workshops with 25 participants each (150 total) reconvened through the online community, but not face to face; and
- C: 3 one day workshops in each of three locations with 25 participants each (75 total), then reconvened for one large citizen summit in London, supplemented by an online community.

Option C was unanimously agreed to be the approach that gave the best balance between numbers, depth of dialogue and different geographies. It aimed to give different areas and groups the opportunity to focus on different themes, then compare their views and identify shared or different ideas about the future. The reconvened summit in London was felt likely to give participants a greater sense of occasion and potential for citizen impact and to give all participants access to the same range of experts on the day. Complementing this in-depth involvement of the 75 individuals with online inputs from up to 400 further individuals had the potential to broaden inputs and explore issues in greater depth at relatively low additional cost. Policy makers interviewed agreed that this approach was robust and that the richness of the qualitative results outweighed the potential benefits of more quantifiable responses from 150 participants. Participants particularly appeared to enjoy the opportunity to hear opinions from other cities at the London Summit and most felt the process would result in useful outputs for policy makers.

Policy makers and specialist views on methodology

- *“the methodology was an experiment – the process worked very well – no correct answers and they could be different with other people/locations”*
- *“Methodology of content generation seemed very smart – a nice balance of public, expert and market engagement” (Expert Stakeholder)*
- *“Would have been nice to have a video of the process to show the process and participant journey rather than solely relying on a paper report” (Expert Stakeholder)*
- *“Robust, broad-based, sensible” (policy maker)*
- *“Day in the life of [future city scenarios] worked very well to make the scenarios more tangible”*
- *“very good research but could risk getting lost if the results are not disseminated in a well written document”*

11. Summary of Key Findings and Lessons

11.1 Key findings

This Sciencewise public dialogue process involving 75 citizens from three cities in face to face events and up to a further 400 individuals in an online community fed into a technically wide-ranging and complex futures visioning process. Close collaboration between two contractors - futures experts Forum for the Future and public dialogue experts Ipsos MORI – Innovate UK and Sciencewise led to a well-designed process. The process and the resulting stimulus materials will be launched as a toolkit which can be used again in different locations with different groups by Innovate UK and other city authorities.

Embedding a public dialogue within a futures visioning process exercise seems very likely to deliver economic benefits for city policy makers and solution providers which more than justify the additional costs of this component. Benefits are likely to arise from a better understanding of the 'soft' infrastructure which is needed alongside costly 'hard' infrastructure for well integrated cities to ensure that technology is not only seen as a commercial opportunity but a means of delivering cities that work for those that live, work in and visit them.

11.2 Lessons

- **Dialogue design and framing.** The design of public dialogue component in order to fit the available budget involved some compromises in number of participants and locations but was carefully design to ensure that participants were able to discuss a very broad range of topics in some depth. An experienced dialogue delivery team recognised early on that there was too much ground for all participants to cover all aspects in equal depth. A sensible compromise allowed all individuals to hear about all issues at a general level while allowing sufficient time for them to absorb and digest information, to have an informed dialogue around a smaller number of systems and pursue their interest in others through an online forum.
- **Recruitment** generally worked well and resulted in a good mix of participants which reflected the cities they came from. Some last minute recruitment of friends or family to fill late drop outs led to difficult dynamics in one location, but this was ably handled by the lead facilitator.
- **Stimulus materials.** A great deal of effort and design resource went into developing visual stimulus materials (six city systems, three place scenarios, 10 technology cards). The time involved in translating materials from specialist workshops for a wider public should not be under-estimated. Visual materials were very well received by participants. Where wordy text was needed to provide further context participants found it easiest to absorb through carousels and self-discovery in small groups.
- **Facilitation.** An experienced and well briefed team of lead and table facilitators were able to provide continuity between events, meet the challenges of covering a great deal of technical content within challenging timetables. As a result all participants felt they had been able to contribute and have their say.
- **Reconvened event.** Almost all participants from Glasgow and York were able and willing to travel to London for the reconvened summit event. Participants from all three locations really appreciated the opportunity to meet those from other cities, share their experiences and hear other views. The additional costs involved in overnight accommodation and travel were outweighed by savings in facilitator time and venue rental for running 3 separate events. The excitement created around the summit event also gave most participants a greater sense of the potential for them to have an impact on policy making.

- **Online community.** The online community was drawn from a group more accustomed to conventional market research exercises. To add significant value to a face to face process the purpose and how outcomes will be used needs to be clearer from the outset. This strand added some breadth of views but would have needed more resource for moderation, and opportunities for crowd sourcing of ideas to add a great deal to the overall process.
- **Satisfaction.** High levels of participant satisfaction with the public dialogue process and interest in the process from policy makers appear to offer opportunities for Innovate UK to build on the current project and establish a standing group of informed citizens who are willing to be involved in deliberating about the pros and cons of different city system scenarios and specific technologies in the future.
- **Governance.** A light touch Advisory Group which met virtually was efficient in terms of core team and member time requirements and allowed individual from outside London (including overseas) to be involved. However, virtual meetings made it difficult for the AG to really gel and feel fully engaged with the process. Challenging time frames for developing stimulus materials meant that AG members were only able to make high level comments, but this was appropriate for the nature of the dialogue.
- **Project Impact.** For reasons beyond the control of the commissioners and the contractors there was a long time lag between completing project activities and publishing the final outputs. A planned high profile launch is now likely to allow the research to have positive wider impacts, although it is too early for the evaluation to attempt to quantify these.
- **Costs and benefits.** The slippage at the end of the project and a decision to recruit individual contractors, rather than a consortium, has increased the time spent on project management and coordination by all parties and the risks of the project not delivering. In this case challenges were overcome by the contractors working in close collaboration to deliver a high quality process. Further value could easily be added to this project at relatively low marginal cost by involving a group of the public participants in a citizen panel to bring the voice of the citizen to future work on integrated city systems and individual technologies.

Annex 1: Members of the Advisory Group

Name	Role
Alexandra Paget	Demos (Think Tank)
Ellie Cosgrave	University College London (Academic)
Caroline Twigg	Future Cities Catapult
Eleri Jones	Government Office for Science
Richard Miller	Innovate UK
Geoff Snelson	Milton Keynes City Council (Local Government)
Adrian Slatcher	Manchester City Council (Local Government)
Steve Turner	
Joe Manning	New Local Government Network
Scott Smith	Changeist (post-national research, consulting and creative group)
Roger Savage	Atkins Global (Business)