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## Statement of Originality

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1 Executive Summary

Given the ‘wicked problem’ of measuring social value and social impact, the O4C evaluation approach is intentionally pragmatic and flexible, being primarily formative.

This deliverable, D4.1 Evaluation Framework, together with D4.5, the data management plan, is the first deliverable in Work Package 4: Social Impact and Sustainability. As such, it lays the groundwork for the rest of the work package. At this stage in the Open4Citizens project, the evaluation framework has yet to be fully operationalised. This will be done leading up to the first round of hackathons in collaboration with all project partners. The aim is to ensure that the theoretical framework laid out in this deliverable delivers rich data, gathered by the O4C pilot teams, which will facilitate the reflection on the extent to which the project is achieving its objectives, broken down into measurable indicators. Section 3 highlights the complexity and challenges involved in measuring social value and social impact. Given this starting point, the O4C evaluation framework contains both formative and summative elements. The focus is on process evaluation, to facilitate learning and sustainability, taking inspiration from a performance audit approach, inspired by anthropological evaluation theory and responsive evaluation in particular. Continually revisiting the project’s overarching theory of change and the individual pilots’ contribution stories will allow us to identify where the O4C project is creating social value (see section 4).

The evaluation framework is focused on the hackathon events, which will lead to the establishment of OpenDataLabs.

The O4C project aims to empower citizens to use open data to improve their urban public services. The long-term, sustainable framework for this support of citizens is a network of OpenDataLabs. These ODLs will be established by the project partners at 5 pilot locations based on experiences from two rounds of hackathons that will be held at each pilot location. By evaluating these hackathons and their emerging social impact we will define best methods, practices, tools and approaches and use that knowledge in further defining and shaping ODL. Sections 4.2 and 4.3 outline the indicators to be measured over the course of the project. The majority of the detailed quantitative and qualitative indicators relate to the hackathons, which includes pre-hack, hack and post-hack activities.

The evaluation of hackathons requires a systematic breakdown of indicators and methodologies for their measurement, based on 2 perspectives and 3 levels of value creation.

We have chosen to focus this evaluation framework on two perspectives: 1) the experience of the O4C project team involved in running the hackathons at each pilot location and the value that is created for the project, and 2) the experiences of the citizens and other stakeholders taking part in the hackathons and the value that they see in taking part. In addition, we focus on three levels at which we wish to measure the social value created by the O4C project: 1) the value in co-design activities, i.e. the direct activities and outcomes of the hackathon (value in-use), 2) the value in supporting the co-creation process, i.e. methods and tools (including infrastructure) employed by the pilots during but not restricted to the hackathons, and 3) the value in the impact on the project ecosystem, i.e. the long-term, broad impact of the O4C project on governance and society. The relationship between these perspectives and values and the hackathon activities can be seen in
section 2 and figure 1 in particular. See section 4, figure 4 and table 5 in particular, for a further explanation of these different levels of value creation.

The tables in section 4.3.4 outline the data gathering activities, highlighting the use of multiple data gathering methodologies. This is followed by more detailed discussion of the key indicators in the project. Most of these relate to the hackathon activities, the evaluation of which will allow the O4C team to indicate the extent to which longer-term project objectives may be achieved.

The evaluation workflow relates to the perspectives being evaluated and the levels of impact, front stage and back stage, relative to hackathon activities, with a focus on reflexivity from the embedded evaluators.

Section 5 shows how the perspectives of the O4C hackathon teams (‘the crew’) and the citizens taking part in the hackathons can be seen as taking place ‘front stage’ and ‘back stage’. The front stage activities are those that involve direct interaction with the citizens in hackathons. The back-stage activities relate to the O4C team’s own evaluation and reflection, both at the pilot level and at the full consortium level. These reflection activities are essential in a project like O4C, where the evaluation is being carried out by the project team, rather than by an external evaluator. They will be facilitated by revisiting the contribution story that each pilot will develop and the overarching theory of change of the O4C project.

Section 6 outlines how the theoretical framework will be made more operational in the period leading up to the first round of hackathons by the creation of templates for data collection and reflection, as well as checklists and processes for data collection and management. These tools and activities will from part of the data gathering and interpretation task.
1.1 Evaluation focus

This deliverable describes the framework to define the criteria and data that will be collected during the Open4Citizens hackathons (From O4C DoA pg. 35 & 36), as well as how and when this will be done. The aim of Work Package 4 is to explore the Social Impact and Sustainability of the O4C project. The development of this framework and of the first draft of the data management plan (D4.5) are the first tasks in the work package, and will therefore feed into subsequent work relating to 1) data gathering and interpretation (Deliverable 4.2, reported on in M27), 2) O4C scenarios (D4.3 M17, D4.4 M29), 3) further iterations of the data management plan (D4.6 M15 and D4.7 M30), as well as 4) policy briefs (D4.8 M30) and 5) O4C business models and sustainability plans (D4.9 M18 and D4.10 M30).

The evaluation focus will be on the process of service development in the hackathons. Service development will be continued in the OpenDataLabs, once these have been established in each pilot location. Evaluation beyond the two hackathon cycles will therefore include reflections on these services’ real social impact. The other dimension of Work Package 4, focused in the policy briefs, data management plans and business models and sustainability plans relates to the OpenDataLab platform’s capability to support citizen-generated services. The evaluation framework will not address this element in detail at this stage, as this will form part of reflections related to D4.9 and D4.10, the business models and sustainability plans. However, the evaluation framework will facilitate reflection on overarching evaluation activities and those related to measuring the long-term impacts of the Open4Citizens project, supported by the establishment of a network of sustainable OpenDataLabs. As the project progresses and the OpenDataLabs take shape, the longer-term evaluation of service development in the OpenDataLabs can be revisited.

Having considered previous approaches to the evaluation of projects of this type in section 3, focusing on creating social value and sustainability using open data, we identify the key performance indicators (KPIs) related to the project objectives, the most appropriate data collection methodologies, timings of data collection relative to the project phases, initial guidelines and templates for data collection, as well as thoughts about data reflection and analysis. The latter will be further developed as part of the data collection and interpretation task, to be reported on in D4.2 (M27).

The evaluation framework includes both formative and summative elements in order to maximize learning in the project, to explore causality with respect to observed and measured outputs, and to identify the extent to which initial project goals, objectives and expected outcomes have been reached.

1.2 Evaluation perspectives and object

There are two main perspectives in the evaluation: 1) the project team perspective, concerning the experience and reflections on the hackathon process of the Open4Citizens consortium members at the different pilots and across the pilots in order to identify successes, challenges and learning opportunities related to the O4C methodology and 2) the participants’ perspective, that focuses on the citizens involved in the pilot projects with the aim of understanding the extent to which they feel more empowered to make appropriate use of open data in the context of their public services as a result of the O4C activities.
In addition, the object of the evaluation is articulated according to different levels of value creation. 1) a first level concerning the value created in the co-design activity, which concerns the outcomes of the hackathons and the post-hack activities, 2) a level concerning the value created by the consortium members to support the co-creation process, which concerns the effectiveness of the methods used, and 3) a level concerning the value created by the whole O4C project, focusing on the relationships between the key organizational stakeholders (the ecosystem) involved in public service delivery, where citizens’ empowerment is prioritised. At all stages in the evaluation, it will be essential to discuss progress relative to expectations, returning to the shared contribution story and theory of change of the O4C consortium partners to see whether and, if so, how, these have changed. Details of the contribution story and theory of change will be discussed in section 3.

Figure 1: O4C Evaluation perspectives and levels

The figure above illustrates the perspectives from which the O4C evaluation will be carried out, as well as the levels of value creation that are involved during a hackathon. If we consider the hackathon itself to be the stage upon which activities take place, the hackathon participants’ perspective and individuals’ experiences of the hackathon are front stage, i.e. obvious for all stakeholders. The perspective and experience of the consortium members are then back stage, i.e. being captured within the evaluation framework, but not influencing the participants’ experience. Considerations about the levels of value creation take place throughout the hackathon. Indicators relating to these two stakeholder perspectives and the three levels of value creation all feed in to the evaluation of the hackathons. In addition, data gathered relating to these indicators allow for the evaluation of the O4C approach as a whole, beyond the individual pilot hackathons, as well as from the first hackathon phase to the second.

The ultimate aim of the O4C project is to have a positive impact on society, by empowering citizens to use open data to improve their urban public services or to create new solutions to improving their
lives. As shown above, we define social value in the O4C project as being related to the three levels of 1) co-design activity, 2) supporting co-creation and 3) the O4C-project ecosystem. By evaluating the project at these three levels together, we approach a definition of what social value means in the O4C project for the groups of citizens we are working with in each pilot. Comparing evaluation data across the 5 pilots will also allow us to identify any commonalities in these definitions to approach a broad description of social value that holds true for the O4C project as a whole. However, the idea of what social value is and how it is created is not clearly understood. In addition, understandings of social value are necessarily context-dependent; one society or social group’s definition of what is valuable to them is not necessarily the same as another group’s. In order to measure social impact (both positive and negative impact), it is helpful to understand how social value is defined.

In order to frame the O4C approach to defining social value and to measuring social impact, we review recent approaches to measuring social impact in open data initiatives in section 3.
2 Approaches to measuring social impact and defining social value

2.1 The “wicked problem” of defining and measuring social value

Measuring the impact of an O4C hackathon requires an assessment of the social value that a hackathon creates. Social value can be created directly by the results of a hackathon (apps, services, etc.) influencing the society. However, social value can also be generated indirectly, for example, by the knowledge generated in the hackathon, emergence of new communities or stakeholder networks or the creation of new governmental policies that have an impact on the society where these changes take place.

Measuring social value (what is seen as being beneficial in the society and that improves citizens’ lives) and social impact (to what extent and in what way a certain intervention influences citizens’ lives in a positive or negative way) is a relatively new problem in the social sciences, and there is no single “social currency” that can be universally used\(^1\). A range of more than thirty different approaches have been developed in the last decade, each stemming from a particular context and each having specificities related to the measurement problem at hand. Behind each measurement method lies a unique understanding of what social value is, which provides the conceptual foundation of the measurement framework. An exhaustive review of these possibilities can be found in “Classifying Social Impact Measurement Frameworks”, an insightful report by Karen Maas (2014).

For inspiration, the set of definitions of social value from the report is reproduced verbatim in the table below.

<table>
<thead>
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<th>Definition of social impact</th>
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<td>By social impact, we mean any of the great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behaviour that occur in an individual, human, or animal, as a result of the real, implied, or imagined presence or actions of other individuals</td>
<td>Bibb Latané, “The Psychology of Social Impact,” American Psychologist, vol. 36, no. 4, 1981, pp. 343-356</td>
</tr>
<tr>
<td>Social impact refers to impacts (or effects or consequences) that are likely to be experienced by an equally broad range of social groups as a result of some course of action</td>
<td>William R. Freudenburg, “Social Impact Assessment,” Annual Review of Sociology, vol. 12, 1986, pp. 451-478</td>
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\(^1\) The crux of the problem, aptly summarised: http://www.theguardian.com/voluntary-sector-network/2012/sep/17/best-measure-social-value
organise to meet their needs and generally act as a member of society.

Social value is created when resources, inputs, processes, or policies are combined to generate improvements in the lives of individuals or society as a whole.


Social impacts are the wider societal concerns that reflect and respect the complex interdependency between business practice and society.


By impact we mean the portion of the total outcome that happened as a result of the activity of the venture, above and beyond what would have happened anyway.


Social impacts are intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, and projects) and any social change processes invoked by those interventions.


Table 1: Definitions of social impact (Maas, 2014)

Emerson et. Al. (2000)\(^ 2\), also quoted in Maas (2014), define social value as being ‘created when resources, inputs, processes, or policies are combined to generate improvements in the lives of individuals or society as a whole.’ Drawing inspiration from this definition, in Open4citizens, we will therefore define social value as:

“the measurable positive social impacts achieved as a result of the implementation of the Open4Citizens methodology in a given context”

A more detailed definition of social value and the social impacts that can be measured based on this definition will be clarified for the context of each pilot as part of the process of defining the pilots’ contribution stories and the O4C theory of change, which relates to all pilots. See section 4.1.3 for more on the value and process of defining contribution stories and theories of change. The definition will frame the discussion of the social value created by the scenarios of usage of open data in D4.3 and D4.4. This particular notion of what social value is exactly as regards the O4C activities underpins our framework to measure it, and provides the conceptual basis of our efforts to map out the impact

of the Open4Citizens activities. We gather inspiration for this process from impact measurement approaches used in other open data initiatives, as detailed in the next section.

2.2 Measuring the impact of open data initiatives

At this stage in the O4C project, we have defined a number of the themes and concepts that we will be working with, inspired by initiatives explored in D2.2 literature review and field studies report and further laid out in D1.1 domain and theme definition and D1.3 concept definition. The practicalities of marrying our theoretical approach to our practical approach are further developed in D1.6 workshop scoping and scheduling, D2.4 preliminary hackathon starter kit and D3.1 hackathon organisation handbook. However, there are a number of theoretical and practical elements that still need to be developed.

A number of open data initiatives have made attempts to measure their impact as part of the intervention to which they relate. An investigation into approaches of these initiatives allows assessment of their strengths and pitfalls in order to provide a solid basis for the O4C evaluation framework. These elements are outlined in the table below.

<table>
<thead>
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<th>Open data project</th>
<th>Approach to impact measurement</th>
<th>Relevance for O4C evaluation framework</th>
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<tr>
<td><strong>CityPulse</strong> - An EC-funded tool to develop smart city scenarios and streamline their evaluation by the citizens</td>
<td>CityPulse created a Smart City Evaluation Tool, an online questionnaire designed to allow interested stakeholders to evaluate the proposed 101 Smart City Use Cases on a set of parameters (see D6.1). This was complemented with a set of key stakeholder interviews. As far as can be ascertained by consulting project documentation, no further evaluation of the project was performed beyond the management Key Performance Indicators (KPIs).</td>
<td>Usage of an attractive web-based Information and Communication Technology (ICT) solution, developed specifically to address the challenge, to crowd source with the citizens the evaluation of a set of scenarios of improvement of public services.</td>
</tr>
<tr>
<td><strong>iCity Project</strong> - An FP7 EU-funded project which opened data from city information systems to allow co-creation of services of public interest by third parties (developers, small and medium enterprises,....).</td>
<td>iCity used a 3H methodology to citizen involvement, which stands for “Head, Heart and Hands on” (see D2.4). Evaluation was structured with a set of indicators for each “H”, with each indicator measuring a higher-level project objective (see D6.1). Data was collected via questionnaires and interviews after each co-creation</td>
<td>Very sound and well thought out methodology, logically proceeding from objectives to indicators. All evaluation details such as templates, data flows and work plans are fully worked out in the deliverable, thus reducing the scope for errors in the field.</td>
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event, and reporting templates completed on a monthly basis by project representatives.

| **Sunlight Foundation:** “The Social Impact of Open Data” – Research report by the Sunlight Foundation addressing the issue of the social impact of open data initiatives | The Sunlight Foundation begins by noting the scarcity of previous work on this topic. To obtain a sufficient corpus of empirical cases on which to base their research, they built a repository of 136 instances of open data initiatives with data on their outputs, outcomes and impacts. To do so they rely on a mixed method approach tailored to the field, including tools such as crowd sourcing, content analysis, qualitative stakeholder interviews and outcome mapping workshops. The potential impacts of open data are clustered in four types: accountability, citizen participation in policymaking, engagement in civic affairs, and data literacy. | Impressive effort in analysing case studies and collecting data on them, so that research can proceed inductively from a significant base of empirical evidence. Useful theoretical insights, such as developing the key differentiation between output, outcome and impact and applying this theory to the discussion of three selected case studies. |

| **GovLab: Research project into the impact of open data** – Creation of an open data impact repository to collect case studies of initiatives that leverage open data for social and economic transformation | Extensive data was collected from secondary sources and stakeholder interviews for each case study. The project aims at a better understanding of how and when open data really works. The framework seeks to establish a taxonomy of impact for open data initiatives, outlining various dimensions (from improving government to creating economic opportunities) in which open data has been effective. In addition, the framework lays out some key conditions that enable impact, as well as some challenges faced by open data projects. | Focus on rigorous collection of evaluation data to obtain enough information of each case study to address the key research questions, chiefly among these the issue of how and when open data really works. |

Table 2: Example case approaches to the measurement of the impact of open data initiatives
As part of the first hackathon cycle we will further define the O4C project while learning from our process and evaluating the extent to which we are achieving our already stated aims. This will be done at the pilot level, as well as across the consortium, facilitated by the O4C evaluation framework and inspired by some of the approaches outlined above. We lay out the overarching O4C evaluation approach below, which will form the basis for data gathering, reflection and improvement.
3 The O4C Evaluation Framework

3.1 Defining the theoretical evaluation approach: both formative and summative, drawing on a range of perspectives

3.1.1 Formative and summative evaluation

The Open4Citizens evaluation framework is deliberately pragmatic, drawing on a number of theoretical approaches to evaluation that support both formative and summative elements of our evaluation. Table 3 outlines the types of evaluation that are regarded as formative and summative, when in a project they should be used, and the benefits of using the different types of evaluation. In the O4C project, our evaluation framework particularly aims to be 1) clarificative: continually defining and clarifying what we are doing and why at the project and pilot level, 2) interactive: improving our project design (hackathon process and OpenDataLab structure) in an iterative way, and 3) outcome focussed: to assess the project outcomes relative to our initially stated objectives and any revised goals that we define over the course of the project.

<table>
<thead>
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<th>Type of Evaluation</th>
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<td>Proactive</td>
<td>Clarificative</td>
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<tr>
<td>When to use</td>
<td>Pre-project</td>
<td>Project development</td>
</tr>
<tr>
<td>Why use it?</td>
<td>To understand or clarify the need for the project</td>
<td>To make clear the theory of change that the project is based on</td>
</tr>
</tbody>
</table>

Table 3: Types of evaluation. Source: Owen & Rogers (1999)
3.1.2 Anthropology, performance audit and responsive evaluation

The relatively small number of pilots in this project, a total of five cities, makes the Open4Citizens project well suited to an evaluation anthropology approach (Butler and Copeland-Carson, eds) incorporating intensive, ethnographic evaluation with a focus on qualitative methodologies. A performance audit approach (Ling and Villalba van Dijk (eds.)(2009)) is also useful to consider in the complex social contexts within which the Open4Citizens project is taking place, highlighting the need for a definition of a shared theory of change and contribution story between the pilots, as well as allowing for variations and learning between the pilots. This will be further clarified in the next section. Ling and Villalba van Dijk (eds.) (2009), in proposing how effective evaluation of public services may be carried out, highlight the fact that the relationships of accountability in such contexts have become increasingly complicated over recent years, necessitating a pragmatic evaluation approach, employing a toolkit of methodologies that are specifically tailored to the evaluation context and the stakeholders involved, as well as using a more embedded evaluator rather than an external evaluator with little direct involvement with the evaluation object and project stakeholders. The governance level of the O4C project involves complicated stakeholder relationships, where it can be challenging to identify responsibility for activities and interventions relating to public services, as well as to understand who has the power (and funding) to act when promoting innovation. The O4C evaluation framework is also inspired by the responsive evaluation approach. When Stake ([1973]1987) first introduced this approach, he emphasized that responsive evaluations are more attuned to the natural ways in which people assimilate information and arrive at understanding (Stake in Schwandt 2001). This approach takes the citizens’ voices, experiences and perspectives as the empirical basis for the evaluation, taking into account the inherent uncertainty and ambiguity that accompanies a complex project. The role of the evaluator is particularly important here, as it takes a certain analytical sensitivity to interpret such complex data material, find correlations and make conclusions that illustrate the personal, processual and practical aspects of a certain project in correlation to the social setting of each activity. The responsive approach is thus suitable as a way to reach an understanding of the complexities of evaluating the Open4Citizens project and in order to reflect on the sensitivities of having the O4C consortium partners carry out the evaluation, rather than employing external evaluators. As the project develops over its thirty-month lifespan, consortium partners will discuss and adjust the evaluation framework to ensure that evaluation activities correlate with the progression of the project.

3.1.3 (Re)defining the O4C theory of change and contribution stories

Rather than a methodology, the Theory of Change approach to evaluation uses a collection of different data gathering and analysis tools and approaches. The focus is not only on work to understand the contribution of a project’s activities to achieving outcomes but, more importantly, to gather data that helps the evaluator to promote learning and accountability (Ling & Villalba van Dijk (eds.) 2009:7-8). Evaluation data collected supports an understanding of causal mechanisms as well

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3 We are grateful to Tine Sønderby and the Spring semester 2016 class in Evaluation Anthropology at the University of Copenhagen for inspiring elements of this approach.
as causal effects in the project, and we are able to show what has actually happened, rather than what we in the O4C consortium or external stakeholders say or think happened. There is a focus on 1) process as much as outcomes, 2) having a more embedded evaluator, 3) reconstructing and representing events to see how they relate to identifies outcomes, 4) the fact that the initial theory of change might change over the course of the project and this should be captured, and 5) the fact that there will be different interpretations and understandings of what is going on, based on stakeholders (possibly even consortium partners’) different values, interpretations and interests.

In addition to frequent reflections on the consortium's overarching theory of change, developing a contribution story for each of the pilots will help us to reduce any uncertainty about the contribution made by the pilots to improving urban public services or the project goals associated with this overarching aim (Ling & Villalba van Dijk (eds.) 2009:8-10). Developing a contribution story involves clearly laying out why we think that the approach and resources that we have will make a positive difference related to our pilot theme, looking at what side-effects or unintended outcomes we think there might be and making explicit what assumptions we have about what we’re trying to achieve. This approach allows us to discuss contribution rather than, much more challenging to measure, attribution. Tools to do this include process maps and logic models and we will identify as a consortium which are most appropriate for our needs. Towards the end of the project, the contribution stories may provide a means through which to communicate some of the (especially pilot context-specific) findings.

3.1.4 Contextualisation in time and space

The evaluation of the hackathons, including pre-hackathon and post-hackathon activities, forms the core of the evaluation framework. However, reference will be made in the framework to longer-term evaluation perspectives related to the Open4Citizens project’s longer-term goals and vision and the expected outcomes that are related to these. The aims of this framework are to develop a pragmatic guide, which all partners agree on and are able to implement, given their available resources for evaluation. In order to ensure that there is agreement among consortium partners regarding our theory of change, the framework will need to be revisited throughout the project.

The Open4Citizens evaluation framework aims to measure the social value of the O4C project across all five pilot locations, while taking the specific context of each pilot into account. An awareness of regional specificity with respect to the execution of project activities is necessary to identify the extent to which we can reach cross-project conclusions about social impact. The aim of this evaluation framework is to present a list of key performance indicators (KPIs) that are relevant across the five pilots. Given the time, budgetary and resource constraints in the pilots, an approach has been selected that involves outlining both quantitative and qualitative indicators and providing clear guidance for data collection and analysis. The scope and nature of the guidance needed will be clearly determined by the consortium at the pilot and the project levels. This prescriptive data gathering activity is supported by intensive data analysis activities within and across the pilots, in order to capture similarities and differences in measurable impacts and to learn from these between the hackathon cycles.
3.2 Project objectives and indicators

The Open4Citizens project is based on a belief that we can create an international movement of citizens who are able to understand and seize the opportunities of open data to improve their urban public services. The overarching goal of the Open4Citizens (O4C) project is to have a positive (social) impact through OpenDataLabs on the social sustainability of urban services by narrowing the gap between 1) the way services are designed and citizens' everyday lives; 2) the technological possibilities offered by Open Data's availability and stakeholders' ability to understand and use the possibility. The more detailed objectives of the O4C project are listed below. This version of the list, from D1.3 Concept Definition (first draft), has been slightly amended since the initial list in the Description of Activities (DoA) for the project.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJ.01</td>
<td>Creating OpenDataLabs where citizens can design new services, or improving the existing ones, in a collaborative environment and by using Open Data</td>
</tr>
<tr>
<td>OBJ.02</td>
<td>Exploring hackathons as new forms of collaboration among citizens, technical experts and public institutions that enable citizens, interest groups and grassroots communities to understand and use the potential of open data</td>
</tr>
<tr>
<td>OBJ.03</td>
<td>Overcoming the cognitive gap the majority of citizens may have with respect to open data by making knowledge available in the form of consultants in the OpenDataLabs, where citizens will experience the practical value of open data in the conception, modification, adaptation and maintenance of urban services</td>
</tr>
<tr>
<td>OBJ.04</td>
<td>Combining two specific models of OpenDataLabs; specifically the solutions development lab and the incubator models</td>
</tr>
<tr>
<td>OBJ.05</td>
<td>Exploring and driving opportunities for further exploitation and implementation of the developed and tested solutions through social networks</td>
</tr>
<tr>
<td>OBJ.06</td>
<td>Creating an international network of cities and organizations where the OpenDataLabs model implemented by Open4Citizens can be replicated and transferred so generating an international movement based on cooperation and learning within the network.</td>
</tr>
</tbody>
</table>

Table 4: Open4Citizens project objectives
3.2.1 The what, why and how of Open4Citizens

These objectives relate to all levels of the project i.e. the what, how and why of it, with some objectives relating to more than one of these levels. Objectives 1 and 2 relate to what activities will be carried out towards the overarching project goal within the frameworks provided by hackathons, carried out along similar lines in all five pilot locations and through the further framing of these hackathons within OpenDataLabs. Objectives 2 and 3 state how this will be done; i.e. by exploring and fostering new forms of collaboration and overcoming the open data cognitive gap that citizens may have. Objectives 5 and 6 look at why, i.e. in order to ensure and maintain positive impact on innovation and improvement in social services. The partners in the O4C consortium are ultimately motivated and driven by the why, which is our desire to transform the way in which passionate and connected people work with open data in such a way that they develop solutions to real challenges they face in public service delivery.

In addition, the objectives relate to various timescales. Activities related to objectives 1, 2 and 3 will take place in an iterative process from the initial pre-hack phase of the project (months 4-6), focused on the hackathon activities, and will be repeated in the second year of the project. Objectives 4 and 5 are not necessarily contingent on the hackathon activities, but will require input alongside the hackathon events in the medium term. Finally, objective 6 is a longer-term outcome of the O4C project. Some objectives suggest clear indicators, while others will be the basis for overall reflections and ongoing evaluation by the O4C project team. The impacts of successfully implementing the objectives, number 6 in particular, are unlikely to be measurable within the thirty-month scope of the O4C project. Instead, evaluation of this objective will need to be built into the OpenDataLabs’ evaluation process.

The focus of the evaluation framework is the hackathons themselves, as they form the core activity of the project, which we will repeat in the first and second years of the project. Figure 2, Focus areas for evaluation, below, shows the overarching thematic areas that will be evaluated during the O4C project. Moving outwards in time from the ‘hacking’ activities, we will look to reflect on changes in such diverse areas as 1) Attitude and awareness (of open data and the O4C approach), 2) Hackathon participants (their motivations, desires, co-creation), 3) Facilities (available for ‘hackers’), 4) Products (from the hackathons), 5) Data (better and possibly new data sets), and 6) Community (developing around the common challenges being solved in hackathons). These all feed into the longer term project aims of having a positive and lasting impact relating to 1) the Open Data Platform and the data landscape nationally and internationally, 2) OpenDataLabs, 3) social impact, and 4) social sustainability of public services through a sustainable O4C approach.

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Figure 2: Focus areas for evaluation

3.2.2 The outward value of the O4C project can be measured along 3 axes

Value creation in the Open4Citizens project can be viewed along three intersecting axes, as shown in Figure 3 ‘The O4C project adds value along 3 axes’. Axis one relates to hackathon outputs, running from intangible attitudes and behaviours of hackathon participants at one end to tangible services at the other. Axis two relates to the context within which the hackathons are held and which is to be developed over the thirty months of the project, running from issues related to the immaterial data that is part of the OpenDataPlatform but also in the broader data ecosystem (creation, improved quality, knowledge of the data landscape) to material infrastructure such as a physical location for the hackathons and OpenDataLabs, as well as equipment, skills and expertise needed to develop the hackathon solutions to public service challenges. The third axis relates to the social level at which O4C impacts take place, running from the individual to the community level.

1. Hackathon outputs: attitudes/behaviours (intangible) <-> (tangible) services
2. OpenDataLab: data/knowledge (immaterial) <-> (material) infrastructure
3. Social level: Individual <-> community
Figure 3: The O4C project adds value along 3 axes
The evaluation spaces suggested by the matrix above will be further elaborated upon by the consortium partners, relating them to the indicators described in detail in this deliverable. This will allow each pilot to further describe the expected outputs in each area as these relate to their specific pilot context.

3.3 Measuring indicators: What to evaluate
In this section, we describe the two perspectives from which evaluation will be carried out in more detail. We also further describe the three levels of value creation that the project is operating with and provide examples of these.

A systemic approach for the definition of an evaluation framework suggests structuring the evaluation according to three key factors (Foglieni 2016)\(^5\):

- **The perspective of the evaluation** depending on the actors involved in the evaluation design and/or addressed by data collection and interpretation
- **The object of the evaluation**, i.e. what is evaluated
- **The time of the evaluation**, i.e. when the evaluation activities take place in respect to the program activities.

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\(^5\) Personal communication between Francesca Foglieni, Aalborg University and Nicola Morelli in May 2016 regarding an upcoming publication.
3.3.1 The perspective of the evaluation

The detailed evaluation in the pilots will highlight several perspectives, for each of the participants to the hackathon activities. However, from a broader point of view, and for the purpose of outlining an evaluation framework, the main perspectives to be considered are:

- **The project team perspective**, i.e. the perspective of the consortium team, that should identify successes, challenges and learning opportunities related to the methodology and the approach used at the pilot and in relation to the broader O4C project.

- **The participants’ perspective** i.e. the perspective of all the people, citizens, interest groups, IT experts public administrators and others participating in the pre-hackathon, hackathon and post-hackathon activities. This perspective should emphasise the extent to which the project empowers participants in making appropriate use of open data in the context of their public services.

3.3.2 The object of the evaluation

The evaluation framework will focus on all the key components of the project to verify their capability to produce value, according to the participant and the project team perspectives.

Morelli and De-Götzen (2016) propose that the value creation process be articulated over three levels:

1) The level of value in use, in which the interaction between different stakeholders will produce the service value at this level value can be generated through e.g. a) new app and service concepts developed during the hackathon, b) knowledge and skills gained by participants, c) citizen and stakeholder communities forming and expanding;

2) The level of infrastructure, i.e. the level in which expert designers operate to provide tools and support to the value-creation process; the value created at this level may consist of best practices for organisation of the hackathon process, including combinations of specific methods and tools used to maximize value created in level 1, guidelines for pre–hackathon and post-hackathon activities;

3) The level of governance, in which a strategic approach should suggest an overview of the service ecosystem, in order to represent the system and possibly make it replicable and scalable, value generation at this level includes input for Open Data Lab, organisation and positioning within the urban ecosystem of government institutions, organisations, businesses and citizens; advice for local, national and EU-level policy makers.

This view would suggest an articulation of the evaluation framework for the O4C project based on:

- The value created by the co-design activities within the hackathon. At this level, the focus is on the value co-creation. The evaluation concerns the outcomes of the hackathon, more specifically the viability of the concepts developed in the hackathon and the post-hack phase (in terms of feasibility and economic sustainability) and early indications of the social quality those concepts may generate.

- The value created by the consortium members in defining tools and support for the co-design process; at this level, the focus is on methods and tools used, synthesised in the preliminary
hackathon toolkit (D2.4) and on the process of *infrastructuring*\(^6\) that the team will organise to support the co-creation process in the hackathon, namely the OpenDataLab virtual platform (the Open Data Platform) and (possibly) physical infrastructure. The evaluation concerns the effectiveness of the methods, the level of definition of the concepts developed in the hackathon, the level of involvement of the various stakeholders, the capability for the project to increase the stakeholders’ awareness about the potential of open data and the efficiency of the OpenDataLab in supporting the co-creation project.

- The value created by the whole project in suggesting a new model for public service delivery and for generating innovation, thus also a new strategic direction for increasing use and accessibility of open data for citizens. At this level, the focus will be on the methodological approach, based on the extension of the concept of hackathon to the citizens and the definition of innovation ecosystems that can support the OpenDataLab platform and its expansion/replication. In terms of evaluation, this concerns the replicability of the O4C methodological approach based on its effectiveness as well as the scalability and extension of the OpenDataLab. In addition, it concerns the extent to which the O4C approach is sustainable beyond the life of the thirty-month project as a means of empowering citizens and supporting their participation in public service design.

Such aspects could be synthesised in Figure 4 and in Table 5, below.

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\(^6\)The term *Infrastructuring* has been suggested by Björkgvinnson, Ehn and Hillgren (2010), to indicate the activities to support the value-creation process among different actors in a social innovation context, the authors “see infrastructure not as a substrate that other actions can run on top of, but rather an ongoing alignment between contexts”
Figure 4: Key project components where value is created

<table>
<thead>
<tr>
<th>Level of value creation</th>
<th>Focus</th>
<th>Value from Hackathon Participants’ perspective</th>
<th>Value from the O4C Project Team’s perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>In co-design activity</td>
<td>Hackathon results</td>
<td>Viability of the concepts</td>
<td>Viability of the concepts</td>
</tr>
<tr>
<td></td>
<td>Quality of services</td>
<td>Innovation potential</td>
<td>Innovation potential</td>
</tr>
<tr>
<td>Supporting the co-creation process</td>
<td>Pilot activities (Practical tools and support provided)</td>
<td>Experience of inclusion and value of individual contribution</td>
<td>Effectiveness of the co-creation methods Level of definition of the projects developed in a pilot Stakeholders’ involvement in each pilot Raising local awareness of open data and the O4C project</td>
</tr>
<tr>
<td></td>
<td>IT infrastructure (Open Data Platform)</td>
<td>Accessibility and Usability (visualisation/working tools)</td>
<td>Effectiveness of the OpenDataLab development (datasets/tools)</td>
</tr>
</tbody>
</table>
Level of value creation | Focus | Value from Hackathon Participants’ perspective | Value from the O4C Project Team’s perspective
--- | --- | --- | ---
O4C Project Ecosystem | O4C project | | Effectiveness of the O4C method and process (pre-hack - hackathon - post-hack) Replicability of the methodological approach and extension of the OpenDataLab

Table 5: What to evaluate from the perspective of the hackathon participants and the O4C team related to 3 levels of value creation

### 3.3.3 Timing of the evaluation

The evaluation activities will take place in different phases of the hackathon process, to emphasise different dimensions. A set of indicators will be generated to encapsulate activities from the earliest to the latest phases of the process. Such indicators may be integrated or modified in the following phases or in the second cycle of the project, to address specific evaluation objectives. The timing of evaluation activities is discussed further in section 5.1, where the evaluation data collection activities are detailed. Table 6 provides an overview of the dimensions to be evaluated during the three phases of the two hackathon cycles, as well as what the evaluation activities will be focused on. As can be seen, activities in the second cycle build on those in the first cycle.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Dimension</th>
<th>What</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Project Cycle</strong></td>
<td>Pre-hack</td>
<td>Expectations (team/participants) Value facilitation (team) Value co-creation (joint)</td>
</tr>
<tr>
<td></td>
<td>Hack and post-hack</td>
<td>Perception/experience</td>
</tr>
<tr>
<td></td>
<td>After hackathon activities (end of the cycle)</td>
<td>Consolidation</td>
</tr>
<tr>
<td><strong>2nd Project Cycle</strong></td>
<td>Pre-hack</td>
<td>Expectations (team/participants) Value facilitation (team) Value co-creation (joint)</td>
</tr>
<tr>
<td></td>
<td>Pre-hack/hack/post hack</td>
<td>Perception/experience</td>
</tr>
<tr>
<td></td>
<td>After hackathon activities (end of the project)</td>
<td>Consolidation</td>
</tr>
</tbody>
</table>

Table 6: Evaluation timings
The remainder of section 4.3 will look in more detail at how the O4C project expects to create value, focusing on 1) immediate, hackathon-focused co-creation with stakeholders external to the O4C consortium (Table 7), 2) medium-term value created for the O4C team through the specific process of the hackathons and their associated activities (Table 8) and 3) value created by the O4C project as a whole (Table 9) with an eye to longer-term sustainability and positive impact.

3.3.4 Key indicators

The quantitative and qualitative evaluation elements will be based on a set of indicators, derived from the values indicated in columns 3 and 4 in Table 5 What to evaluate, above. The following tables associate the indicators to the value to be assessed. They also specify the data to be collected, the methods by which to do so, and when in the course of the O4C project this could be done.

Table 7 relates to the evaluation of value co-created by the O4C project team, citizens and other stakeholders. For all quantitative indicators outlined here, a precise number, e.g. of viable concepts, to be aimed for will be defined by the consortium before the first hackathons take place. For qualitative indicators, e.g. citizens’ awareness of open data or expectations of the hackathons, each pilot will further define what these mean in their particular pilot context. This will be based on brainstorming on the detailed definition of social value for each pilot and thinking through how this might be achieved. This relates to the clarification of the contribution story of each pilot.

<table>
<thead>
<tr>
<th>Co-created value</th>
<th>Value provided</th>
<th>Indicator</th>
<th>Data to be collected</th>
<th>Method</th>
<th>When (explain)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept viability</td>
<td>Number of viable concepts developed after the hack</td>
<td>Statistics</td>
<td>Statistics/Quantitative</td>
<td>After (Statistic on the number of viable concepts developed in the hack, and the number of the concepts developed and tested after the hack)</td>
<td></td>
</tr>
<tr>
<td>Innovation potential</td>
<td>Number of start-up created by the hackathon</td>
<td>Statistics</td>
<td>Statistics/Quantitative</td>
<td>End of the cycle End of the project</td>
<td></td>
</tr>
<tr>
<td>Social quality</td>
<td>Depending on the context in each pilot</td>
<td>Expectations Citizen awareness</td>
<td>Users’ stories Questionnaires interviews</td>
<td>Before (Expectations, awareness) After (expectations awareness)/ user stories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public impact</td>
<td>Mentions on local media</td>
<td>During the process, ongoing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Co-created value of the O4C project
Table 8 relates to evaluation of the value of project activities for the O4C teams running each pilot and its associated hackathons, i.e. this is about the value created by the O4C process in the pre-hackathon, hackathon and post-hackathon stages. It also looks to the evaluation of processes being established through the hackathons, i.e. the OpenDataLabs’ set-up as well as the stakeholder landscape around these.

<table>
<thead>
<tr>
<th>Value provided</th>
<th>Indicator</th>
<th>Data to be collected</th>
<th>Method</th>
<th>When (explain)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness of the co-creation methods</td>
<td>Number of viable concepts</td>
<td>Statistics</td>
<td>Statistics/Quantitative.</td>
<td>During and after the hackathon</td>
</tr>
<tr>
<td></td>
<td>Participants’ confidence</td>
<td>Participants’ knowledge/motivations(expectations)</td>
<td>Questionnaires Interviews</td>
<td>Before (initial knowledge, motivation) After (Participant acquired knowledge, ownership of the solution)</td>
</tr>
<tr>
<td>Level of definition of the projects developed in a pilot</td>
<td>Number of concept ready for further development</td>
<td>Projects’ details</td>
<td>Qualitative.</td>
<td>After Hackathon/post-Hack</td>
</tr>
<tr>
<td>Stakeholders involvement in each pilot</td>
<td>Number of participants Hours of work</td>
<td>Statistics</td>
<td>Quantitative</td>
<td>During the hackathon and post-hack</td>
</tr>
<tr>
<td></td>
<td>Participation</td>
<td>Participants’ experience</td>
<td>Interviews Questionnaires Users’ stories</td>
<td>Before, during and after the pre-hack - Hackathon and post-hack</td>
</tr>
<tr>
<td>Raising local awareness</td>
<td>Increased knowledge</td>
<td>Participants’ perception</td>
<td>Interviews, questionnaires Users’ stories</td>
<td>Before (initial knowledge about OD) and after (knowledge after the hackathon or post hack activity)</td>
</tr>
<tr>
<td>Accessibility and usability of IT infrastructure</td>
<td>Usability</td>
<td>Participants’ perception</td>
<td>Usability tests prototypes</td>
<td>During the development of the Platform</td>
</tr>
</tbody>
</table>
Table 8: Value of the O4C process

Table 9 looks to consolidate indicators leading to the summative evaluation elements, i.e. those related to determining the value of the O4C project as a whole, based on its unique combination of a specific methodology (hackathons), supporting infrastructure for sustainability (Open Data Platform and OpenDataLabs), as well as the overarching ambitions of citizen empowerment, with the impact that this entails for stakeholder relationships related to public service improvement and development.

Table 9: Value of the O4C project

The remainder of this section looks at key indicators of the O4C project’s success in value creation, identifying which perspective it will be addressed from (1) hackathon participants, 2) O4C project team, or 3) from that of stakeholders involved in the governance level of public service delivery). The nature of the evaluation material to be collected is outlined, i.e. qualitative or quantitative data, and any additional considerations about the type of data to be collected.

It should be noted that the indicators detailed below may relate to different project phases and cycles. For some indicators, data need to be collected at each hackathon stage, e.g. during the pre-
hack, hackathon and post-hack. For some indicators, data collected for other indicators on which this indicator depends can be consolidated at the end of each hackathon phase, i.e. twice in total over the course of the project, in order to show the extent to which this indicator is being achieved. An indicator such as xxx is a summative indicator, and we will not be able to reflect on this until towards the end of the project. Yet other indicators, may not be measurable within the scope of the project, but may be included in the business plans for the OpenDataLabs, as we look to the scalability and sustainability of the O4C approach. As the hackathons are the initial focus of the O4C evaluation framework, the numerous, detailed indicators related to hackathon activities will be further specified for O4C partners. The development of focused evaluation data gathering and analysis tools, relating the evaluation framework to the data gathering and analysis task, is the next step in making this current conceptual evaluation framework operational for all pilots.

**Concept viability**

From the participants’ perspective, the O4C hackathon and platform will provide value if they generate viable concepts in response to that can be further developed and generate new services. The indicator that would measure this value is the number of viable concepts. This is therefore a statistic and quantitative value about the number of concepts that will be considered as viable and developed in the post-hack process. The statistical calculation of the viable concept will be possible at the end of the post-hack phase.

**Innovation potential**

From the participant perspective the emphasising of the innovation potential of the hackathon and the related post-hack incubation is essential to raise the awareness of Open Data as a resource for innovation. The indicator that would emphasise the innovation potential is the number of start-ups the hackathon will create. The statistical/quantitative calculation could be done towards the end of the cycle (to encourage participation to the second cycle) and the end of the project.

**Social value and social impact**

The evaluation of social value and its impact is challenging due to difficulties in in establishment of shared indicators for various contexts (as discussed in section 1.2). Social quality evaluation also includes reflection on the impact of the project not only on the individuals participating in the process, but also on the community around them. The parameters to define social quality will be suggested by each pilot. The data to be collected will focus on participants’ expectations, awareness and new knowledge acquired through the participation to the project. Further data could be collected, that makes it possible to evaluate the impact on the community, such as mentions of the project (or the hackathons) on local media. Such data will be collected through users’ stories, questionnaires and interview and represent a sufficient amount of qualitative data, collected with ethnographic methods, to illustrate pilot-specific findings. The scope of these data will be such as to allow for comparability across pilots and for conclusions to be made at a project level. The data collection for the evaluation would take place at the beginning of the project (to register expectations and existing awareness) and will imply an ongoing activity during the whole project.
Effectiveness of the co-creation methods

From the team’s perspective the hackathon approach will provide value if:

- The methods applied will produce a number of viable concepts; and
- The participants will demonstrate a higher level of confidence on how to create new apps/services

The quantitative indicators concerning the number of viable concepts is also valid for this value. The participants’ confidence will instead require to collect qualitative data (interviews, questionnaires) before and after the hackathons. Questionnaires and interviews should include questions about:

- Pre-existing knowledge on open data
- Pre-existing experience in co-design sessions
- Motivation for participating in the hackathon
- Initial expectations

The questionnaires and interviews before the hackathon will be compared with questionnaires and interviews at the end of the hackathon and at the end of the post-hack period.

Level of definition of the projects developed in a pilot

From the pilot team’s perspective recording and evaluating the level of definition of the concepts developed during the hackathon and brought forward to the post-hack period will allow each pilot and the project as a whole to identify the elements needed for a concept to be considered viable. Concept viability will initially be determined by the project team or experts invited to take part in the hackathon. These experts may also be involved in supporting the post-hack development of viable concepts. This evaluation will be based on qualitative evaluation of the level of specification of the outcomes of the hackathon and post-hack. This information needs to be collected at the end of the hackathon or the post-hack period.

Stakeholders’ involvement in each pilot

The involvement of the stakeholders in the activities of the pilot is a very relevant quantitative and qualitative data that helps the O4C pilot team shaping the activities to support the hackathon. The quantitative data is related to the number of participants and the period of their involvement (we will also need to take into account the number of people that will follow the whole process or the duration of the involvement of some of the participants over the process) from the pre-hack to the post-hack phase and the presence during the hackathon.

The qualitative aspects concern the participant’s perception, expectations and experience of the whole process, which can be recorded through interviews, questionnaires and possibly by documenting their own experience in users’ stories, before, during and after each phase (pre-hack, hackathon and post-hack).

Raising social awareness

The project’s aim of raising knowledge and social awareness about the potential offered by open data results in qualitative indicators about participants’ perception of open data as a resource, that can be recorded through interviews, questionnaires and users’ stories. It is important to have initial data about participants’ perception, motivation and pre-existing knowledge, to be compared with analogous data collected after their participation in the workshop.
Accessibility and usability of IT infrastructure

The IT infrastructure that will support the project will include the OpenDataLab, i.e. the IT architecture that will include data and tools for data management and visualisation. The accessibility to this platform depends on users’ perception of its structure, organisation and interface. It also depends on the visualisation and data management tools available on the platform. The evaluation of usability and accessibility will be based on usability tests and on prototypes, in order to record participants’ perception of the platform. This proactive and interactive form of evaluation will also provide information along the design process of the platform and should therefore be placed during the development of the platform, starting from the early development phase.

Effectiveness of the OpenDataLab

At this stage in the O4C project, the exact nature of the OpenDataLabs is yet to be clearly defined, e.g. their possible physical location in each pilot city, the stakeholders who will be involved in financing them, providing technical and other support for working with citizens to bring hackathon solutions to market, and how the ODLs will operate as a network. This further definition of the ODLs will depend on the activities in the first hackathon cycle and judgments by the O4C team about what is desirable and feasible in each pilot location and across the consortium.

The ODL is inextricably tied to the Open Data Platform, which at this stage is also under development. It will be tested during the first hackathon round. The effectiveness of the platform depends on the number of the available and useable datasets. This value will be measured as a statistical calculation of the ratio between the numbers of used datasets over the total number of datasets. The same criteria apply to the data management tools available on the platform.

The evaluation of the effectiveness of the ODL platform should be undertaken during the process of the hackathon events and at the end of each hackathon cycle and of the whole project.

Effectiveness of the O4C approach

The effectiveness of the O4C approach depends on its capability to involve citizens in the hackathons with an adequate level of heterogeneity in social roles, knowledge and skills. Furthermore the effectiveness could be measured as the capability of this system to produce a number of solutions (e.g. services/applications) and their implementation. Those are quantitative parameters that should be measured during the hackathon process. This is a summative indicator, the measurement of which will depend on a number of sub-indicators.

Replicability of the methodological approach

The replicability of the O4C methodological approach should be evaluated on the basis of the replication of the hackathon process within the same pilot and possibly in new pilots. The replications can be statistically calculated, though the definition of the actual replicability depends on the critical evaluation of the difference between the various replications, due to contextual differences. While indications can be identified regarding the extent to which the O4C methodological approach can suitable be replicated, the longer-term social impacts of the approach will not be obvious by the end of the current thirty month project.
4 Data Collection Reflections and Activities

The evaluation framework as it is laid out in this deliverable will be further operationalised in order to appropriately tailor it to the on-the-ground context in which data will be gathered and analysed.

4.1 Evaluation workflow

As the evaluation will be carried out by the O4C project team, it is essential for evaluation activities to be uniform and coordinated between the pilots. The workflow diagram below will support the teams to identify when evaluation activities should take place within their own pilot, as well as when there will be coordination and reflection with the team at Antropologerne, as well as with other pilots and as a whole consortium.

Figure 5: O4C evaluation workflow with selected data gathering and analysis tools

4.2 O4C pilot team members as embedded evaluators

Evaluation data collection will take place throughout the project and will include both quantitative and qualitative data. Data will be collected and analysed by the O4C pilot teams and any additional support that they recruit for this purpose, e.g. volunteers, possibly students, interested in working on the project. This embedded evaluator approach poses a number of challenges and opportunities that we need to be explicit about. The evaluation templates and guidelines for collection and analysis will help to ensure that evaluation data collection is unbiased where necessary. Possible biases of evaluators will be discussed and reflected upon to ensure that they are taken into account in analysing evaluation data. Another way to mitigate bias might be to recruit an additional evaluator.
per hackathon team who is not a member of the O4C project team, and therefore has a less embedded perspective. On the whole, however, detailed knowledge of the project context as well as the local context of the pilot is an asset in evaluation data gathering and analysis. In order to ensure consistent data collection across the pilots, a data collection and analysis schedule with accompanying guidelines will be developed and reported on as part of D4.2 Data collection and evaluation (M27).

4.3 Hackathon evaluation data

This section describes in general terms the evaluation-related data gathering activities to be carried out as part of the O4C project. Timings for data collection and possible tools and methodologies are outlined, which will be related to the workflow illustrated above. Decisions on exact methodologies and tools will be made by the project partners based on the feasibility of the proposed approach at each pilot location. The operational evaluation framework will include laying out the correlation between the indicators, data collection timings and methodologies to be used.

4.3.1 Pre-hack

Data gathering during the pre-hack phase establishes a baseline for future evaluation data and analysis related to 1) the O4C project in general and more specifically at each pilot, and 2) hackathon participants and other stakeholders.

As described in section 4.1.3, the theory of change of the Open4Citizens project will be further clarified with the consortium partners, i.e. this will involve being explicit about our theories about why the O4C project will work, identifying assumptions we have made and exploring any implicit assumptions, as well as whether our theory of how and why we will have a positive social impact has changed since the project’s initial description of activities. Supporting this, we will build the contribution story at the pilot level, i.e. understanding why each pilot team envisages that their use of O4C project resources in their particular context will create social value and which unintended consequences or side-effects there may be. We will return to these questions throughout the thirty months of the project in order to capture the causal effects and mechanism with the aim of gathering evidence about what we think we’re doing, why, and what is actually having an impact.

Example questions for O4C organisers to respond to:

- Do you have any concerns before the hackathon about how successful it will be?
- What do you think will be the most challenging aspect of the hackathon in terms of organisation?
- What do you expect to be the most innovative and generative element of the hackathon?
- What one thing, if achieved, will have made the hackathon a success for you?

For hackathon participants, this involves determining their attitudes and knowledge, as well as collecting standard demographic and statistical data about participants and other stakeholders to contextualise other evaluation material. See section 2.8 on the registration process, where this baseline data gathering will be incorporated.

Baseline data about participants will be gathered during the registration process, as a short questionnaire. This could profitably be linked to on the O4C website or Open Data Platform as a Google form or using SurveyMonkey so that data gathering is standardised for all pilots. Decisions regarding the best format and location of this information are being taken as the functionality of the
Open Data Platform becomes clearer. Some baseline questionnaires may have to be carried out manually at the beginning of the hackathon, if participants have not completed them before the hackathon.

Example questions to ask hackathon participants:

- What do you hope to get out of the hackathon (up to 3 things)?
- How confident are you that you will get these things out of the hackathon? (likert scale)
- After this hackathon, how interested are you in continuing to engage with the Open4 Citizens project? (this does not commit you to anything) (Likert scale)

<table>
<thead>
<tr>
<th>Time</th>
<th>Stakeholder group</th>
<th>Evaluation activity</th>
<th>O4C pilot resources needed</th>
</tr>
</thead>
</table>
| M8 (August 2016) - Hackathon cycle 1  
  M20 (August 2017) - Hackathon cycle 2 | O4C evaluation representative group (at least 1 person from each pilot and from each consortium member) | Baseline O4C theory of change (focus group interview) | Time for meeting, led by Antropologerne, or written response to guiding questions  
  Possible individual follow-up meetings for clarification |
| M9 (September 2016) - Hackathon cycle 1  
  M21 (September 2017) - Hackathon cycle 2 | O4C pilots, separately | Baseline pilot contribution story (focus group interview) | Time for meeting, led by Antropologerne, or written response to guiding questions  
  Possible individual follow-up meetings for clarification |
| Ready for online hackathon registration to open (at least 1 month before the hackathon) | Hackathon participants (‘hackers’) | Baseline determination of motivation and interest. | Template questionnaire  
  - translated into pilot language  
  - Uploaded  
  - Available for completion at the hackathon for late registration (online & printed) |
| Ready for online hackathon registration to open (at least 1 month) | Other stakeholders related to hackathon activities (e.g. inspiring speakers,) | Baseline determination of motivation and interest. | Template questionnaire  
  - translated into pilot language |
### 4.3.2 Hackathon

Evaluation activities during the hackathon primarily involve data gathering on the O4C hackathon approach (process evaluation), the experiences of the participants and the extent to which their attitudes to and knowledge about open data are changing.

The primary methodology will be participant observation. Each participant team should be assigned a member of the hackathon organizing team, who will be available to answer any questions that they have about the use of the preliminary hackathon starter kit tools or where to find additional information that they need. If there are not enough O4C team members to have one per participant team, each individual will need to alternate between more than one participant team. If possible, it is beneficial to have at least one well-briefed evaluator who speaks the hackathon pilot language but who is not a member of the core O4C pilot team as this allows for a non-embedded view of the hackathon activities.

As part of the pre-hackathon briefing for the hackathon team, everyone will be guided through the evaluation activities to be carried out during the hackathon. Standard guidelines and data collection templates will be made available to all pilot locations as part of and supporting D4.1, the Evaluation Framework. In order for the evaluation material gathered to be consistent and comparable across pilot locations and between the two hackathon cycles, it is essential that all members of the O4C hackathon team receive a thorough briefing and answers to any questions they may have. This could be done at the same time as the briefings on the use of the preliminary hackathon handbook.

### 4.3.3 Post-hack

Data gathering during the post-hack phase involves following up on the evaluation data and analysis collected in the pre-hack phase and during the hackathon related to 1) the O4C project in general and more specifically at each pilot, and 2) Hackathon participants and other stakeholders.

The theory of change of the Open4Citizens project will be further developed and reflected upon with the consortium partners. Supporting this, we will reflect on the contribution story at the pilot level. We will return to these questions in both hackathon cycles and throughout the thirty months of the project in order to capture the causal effects and mechanism with the aim of gathering evidence about what we think we’re doing, why, and what is actually having an impact.

Example questions for O4C organisers to respond to:

- How successful was the hackathon?
- What was the most challenging aspect of the hackathon in terms of organisation?

<table>
<thead>
<tr>
<th>Time</th>
<th>Stakeholder group</th>
<th>Evaluation activity</th>
<th>O4C pilot resources needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>before the hackathon</td>
<td>data experts)</td>
<td></td>
<td>- Uploaded</td>
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<td></td>
<td></td>
<td></td>
<td>- Available for completion at the hackathon for late registration (online &amp; printed)</td>
</tr>
</tbody>
</table>

Table 10: Pre-hack evaluation data gathering
- What was the most innovative and generative element of the hackathon?
- What one thing that you achieved made the hackathon a success for you?

For hackathon participants, this involves determining their attitudes and knowledge, as well as collecting standard demographic and statistical data about participants and other stakeholders to contextualise other evaluation material. See stakeholder engagement and other post-hack follow-up for where best to incorporate post-hack follow-up with various participants and stakeholders. Follow-up should take place as soon as possible so that the memories of the hackathon are still fresh in participants’ minds.

Follow-up data about participants’ experience, knowledge and interest will be captured and can be gathered as a short questionnaire with a similar structure to that for baseline data gathering. This could profitably be linked to on the O4C website or Open Data Platform as a Google Form or using SurveyMonkey so that data gathering is standardised for all pilots. Some follow-up questionnaires, e.g. with particularly valuable stakeholders, may have to be carried out in a phone call or face-to-face meeting or at least by sending them in an e-mail, if some participants are hesitant to complete them. However, this is a time-consuming approach, as all data will need to be consolidated online.

Example questions to ask hackathon participants:
- What did you get out of the hackathon (up to 3 things)?
- Did you get as much of these things as you had hoped these things out of the hackathon? (likert scale)
- How interested are you in continuing to engage with the Open4 Citizens project? (this does not commit you to anything) (Likert scale)

<table>
<thead>
<tr>
<th>Time</th>
<th>Stakeholder group</th>
<th>Evaluation activity</th>
<th>O4C pilot resources needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 weeks after the hackathon,</td>
<td>O4C evaluation representative group</td>
<td>Developments in O4C theory of change</td>
<td>Time for meeting, led by Antropologerne, or written response to</td>
</tr>
<tr>
<td>enough time for O4C pilots</td>
<td>(at least 1 person from each pilot and</td>
<td>(focus group interview)</td>
<td>guiding questions Possible individual follow-up meetings for</td>
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<tr>
<td>to have gathered</td>
<td>from each consortium member)</td>
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<td>clarification</td>
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<td>and initially reflected on</td>
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<td>evaluation material</td>
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<tr>
<td>from their hackathon</td>
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<tr>
<td>1 week after the hackathon,</td>
<td>O4C pilots, separately</td>
<td>Developments in pilot contribution</td>
<td>Time for meeting, led by Antropologerne, or written response to</td>
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<tr>
<td>allowing enough time for</td>
<td></td>
<td>story (focus group interview)</td>
<td>guiding questions Possible individual follow-up meetings for</td>
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<tr>
<td>O4C pilots to have gathered</td>
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<td>clarification</td>
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<td>and initially reflected on</td>
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<tr>
<td>evaluation material</td>
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<td>Time</td>
<td>Stakeholder group</td>
<td>Evaluation activity</td>
<td>O4C pilot resources needed</td>
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<tr>
<td>from the hackathon</td>
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</tr>
<tr>
<td>Ready to send the day after the hackathon</td>
<td>Hackathon participants (‘hackers’)</td>
<td>Follow-up determination of motivation and interest.</td>
<td>Template questionnaire</td>
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<td></td>
<td>- translated into pilot language</td>
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<td></td>
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<td></td>
<td>- Available to post or send in e-mail</td>
</tr>
<tr>
<td>Ready to send the day after the hackathon</td>
<td>Other stakeholders related to hackathon activities (e.g. inspiring speakers, data experts)</td>
<td>Follow-up determination of motivation and interest.</td>
<td>Template questionnaire</td>
</tr>
<tr>
<td></td>
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<td>- translated into pilot language</td>
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<td>- Available to post or send in e-mail</td>
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</table>

Table 11: Post-hack evaluation data gathering

5 Evaluation templates and guides

In order to ensure uniformly structured evaluation data collection, evaluation templates and guides will be produced for completion by the consortium partners.

5.1 How-to guide for evaluation data gathering activities

In order to sufficiently prepare all the embedded evaluators, i.e. O4C pilot team members carrying out evaluation activities, to collect data, a how-to guide will be prepared for each data gathering activity or methodology. These guides will include the information outlined in Table 12. For each methodology, a check list will also be produced to ensure that all evaluators have the same materials ready, follow the same steps, and gather the same types of data at similar times during the O4C activities being evaluated. Some of this information, part of the data gathering exercise, will feed into D4.2 Data collection and evaluation.
<table>
<thead>
<tr>
<th>Methodology</th>
<th>Type of data produced</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant observation</td>
<td>Qualitative: quotes, written observations and reflections, pictures, audio recording, video recording.</td>
<td>Checklist Observation reporting form Guidelines for data gathering (for D4.2)</td>
</tr>
<tr>
<td>Online questionnaire</td>
<td>Quantitative and qualitative: demographic data, respondents’ views, respondents’ knowledge about specific subjects.</td>
<td>Checklist Template questionnaire for upload online and possible offline use. Guidelines for data gathering (for D4.2)</td>
</tr>
<tr>
<td>Counting activities at the hackathon</td>
<td>Quantitative: statistical data about numbers of participants involved in specific activities at specific times, etc.</td>
<td>Checklist Template reporting/tally form</td>
</tr>
</tbody>
</table>

Table 12: Overview of content in a selection of 'how-to' methodology guides for O4C evaluators

These guides will be completed in collaboration with project partners in time for briefing of evaluators before data gathering activities. When completed, they could contain information such as the following:

- What is this methodology?
- What does it measure?
- When will you use it?
- How many times do I need to use it/how many responses/informants do I need?
- Remember to ...
- Type of data produced: to be listed.
- How and where should I store the data I produce?

Together, the guides will form an evaluation toolkit for the O4C team, which will be improved upon in an iterative process, as the evaluation tasks are carried out and reflected upon.

5.2 Evaluation consolidation and reflection

As important as it is that evaluation data is collected consistently across the pilots, just as important is a consistent and coordinated approach to data consolidation, reflection and analysis. The exact structure of these guiding documents will be determined with the O4C partners, to ensure that formats are applicable for all pilots.

Evaluation-focused reflection will take place at various points throughout the project, giving all partners the opportunity to consider the extent to which we are achieving our intended goals, why or why not, and how we might change our approach in order to be more effective. In addition, this will provide opportunities to consider whether individual pilots’ and the whole consortium’s ideas about the project vision are changing. This type of reflection will be done on the basis of considering our theory (or theories) of change and contribution story (or stories), as described in section 4.1.3 and figure 5.
6 Conclusions and Outlook

This deliverable has laid out the theoretical evaluation framework for the Open4Citizens project, including details of indicators, methodologies and the planned process of operationalisation of the framework. Next steps in this process involve relating the evaluation framework to the other tasks and deliverables in Work Package 4. The aim of WP4 is to explore the Social Impact and Sustainability of the O4C project. The development of this framework and of the first draft of the data management plan (D4.5) are taking place concurrently, and feed into 1) data gathering and interpretation (Deliverable 4.2, reported on in M27), 2) O4C scenarios (D4.3 M17, D4.4 M29), 3) further iterations of the data management plan (D4.6 M15 and D4.7 M30), as well as 4) policy briefs (D4.8 M30) and 5) O4C business models and sustainability plans (D4.9 M18 and D4.10 M30).

In collaboration with the O4C pilot teams and supported by the formation of an evaluation working group consisting of at least one member of each consortium member, next steps in evaluation will include 1) producing data gathering and analysis templates, 2) ensuring that the templates produced are appropriate and practicable for all pilots and 3) beginning to gather baseline information in the pre-hack phase. Supporting this process will be reflections in the pilots and the project team regarding what we are aiming to achieve and the extent to which this may have changes since it was concretely described in the project’s Description of Activities (DoA), i.e. developing revised contribution stories at the pilot level and a theory of change for the project that all partners agree with.
7 Bibliography


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