

Project Number: 687818
 Project acronym: O4C
 Project title: OPEN4CITIZENS - Empowering citizens to make meaningful use of open data
 Contract type: H2020-ICT-2015 - RIA

Deliverable number:	D4.4
Deliverable title:	Open4Citizens Scenarios (final)
Work package:	WP4
Due date of deliverable:	M29
Actual submission date:	31/05/2018
Start date of project:	01/01/2016
Duration:	30 months
Reviewer(s):	Nicola Morelli (AAU), Janice S. Pedersen (ANTRO)
Author/editor:	Marc Aguilar (I2CAT)
Contributing partners:	Aalborg University (AAU), The Country Council of Varmland (EXPERIO), Fundacio Privada I2cat, Internet i Innovacio Digital a Catalunya (i2CAT), Politecnico di Milano (POLIMI), Technische Universiteit Delft (TUD), Antropologerne (ANTRO)

Dissemination Level of this Deliverable:	PU
<i>Public</i>	<i>PU</i>
<i>Confidential, only for members of the consortium (including the Commission Services)</i>	<i>CO</i>

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 687818. Further information is available at www.open4citizens.eu.

Document history

Version no.	Date	Authors	Changed chapters
0.1	07/02/2018	Marc Aguilar	Proposal for commented Table of Contents
0.2	14/03/2018	Marc Aguilar	Updated commented Table of Contents
0.3	18/04/2018	Marc Aguilar	First draft contents and requests for contributions from pilots
0.4	02/05/2018	Pilot contacts	Inputs for pilot sections
0.5	10/05/2018	Marc Aguilar	First complete version of document, with finished contents for each pilot and including introduction, conclusions/next steps and executive summary.
0.6	17/05/2018	Marc Aguilar	Second complete version of document sent out for internal review, incorporating comments and suggestions made by consortium.
0.7	24/05/2018	Nicola Morelli, Janice Pedersen	Internal review
0.8	28/05/2018	Marc Aguilar	Finished document ready for submission, incorporating comments and suggestions made by internal reviewers.
1.0	31/05/2018	Anne Bock	EC submitted version

Statement of Originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License, 2015. For details, see <http://creativecommons.org/licenses/by-sa/4.0/>

Contributors

Part. No.	Part. short name	Name of the Contributor	E-mail
1	AAU	Nicola Morelli	nmor@create.aau.dk
1	AAU	Louise Klitgaard Torntoft	lto@create.aau.dk
2	i2CAT	Marc Aguilar	marc.aguilar@i2cat.net
3	POLIMI	Grazia Concilio	grazia.concilio@polimi.it
3	POLIMI	Francesco Molinari	mail@francescomolinari.it
5	EXPERIO	Tomas Edman	Tomas.Edman@liv.se
5	EXPERIO	Petter Falk	petter.falk@ri.se
6	ANTRO	Janice S. Pedersen	jp@antropologerne.com
7	TUD	Peter Kun	p.kun@tudelft.nl
7	TUD	Ingrid Mulder	i.j.mulder@tudelft.nl

Table of Contents

List of Figures.....	5
List of Tables.....	5
Glossary	6
1 Executive Summary	8
2 Introduction.....	9
3 A Refined Methodology for Scenario Building	9
3.1 Iterating an Open4Citizens Scenario Building Methodology	10
3.2 The Social Impact Analysis.....	11
3.2.1 An introduction to SROI.....	11
3.2.2 The six steps of SROI.....	13
3.2.3 A universal measure of value?	14
4 The Open4Citizens Scenarios	16
4.1 Open Data Lab Barcelona - 'Athenaeum of Data': a Citizen Open Data Innovation Laboratory located in a Public Library.....	17
4.2 Open Data Lab Copenhagen - A Resource Hub for Open Data Based Design and Learning .	20
4.3 Open Data Lab Karlstad – Community Experience Data Lab Kronoparken (xKRP)	24
4.4 Open Data Lab Milano - The Open Data Lab at Politecnico di Milano	26
4.5 Open Data Lab Rotterdam - The Co-located, Co-owned Open Data Lab	29
5 The Social Impact of the Open Data Labs.....	31
5.1 'Valorising our Hidden Cultural Heritage Hack' at Open Data Lab Barcelona: Assessing the Societal Value of a Typical Hackathon Process	32
5.1.1 The Impact Map.....	33
5.1.2 Methodological notes on estimates and calculations.....	37
6 Conclusions and Outlook.....	38
7 Bibliography.....	41
8 Annex. Impact Map File of the SROI Analysis.....	42

List of Figures

Figure 1. The six stages of SROI	13
--	----

List of Tables

Table 1. The Open4Citizens implemented scenarios	16
--	----

Glossary

Acronym	Definition
Application	Any kind of meaningful use of open data. <i>(As-of "application areas of open data")</i>
[Mobile or Web] App	A self-contained program or piece of software, especially designed to be downloaded by a user on a mobile device or personal computer.
Challenge	A widespread call to action to participate in an open contest (like a Hackathon) for improving or renovating an existing situation.
Citizen	An inhabitant of a particular town or city.
Citizen initiative	An initiative proposed by a (collective of) citizen(s), which ideally is informing the challenges for the hackathon process.
Common	Often used in phrases such as "a new common" or a "global common", the term refers to a new form of a common good, typically created by people through collective action and shared by the community (T de Moor, "From common pastures to global commons: a historical perspective on interdisciplinary approaches to commons", 2011).
Hackathon	Generally understood to be a collaborative event, usually made up almost exclusively of software developers, which typically lasts two-three days and is intended to result in the production of one or more apps. In the Open4Citizens project, the hackathons include a range of participants with different areas of expertise and solutions being developed are not limited to apps.
O4C approach	A workflow based on three consecutive phases: 1) Pre-hackathon; 2) Hackathon; 3) Post-hackathon.
O4C platform	The online digital platform supporting the hackathon process with technological resources, methodological suggestions and data.
Open Data	Data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and share alike. Source: http://opendatahandbook.org/guide/en/what-is-open-data/
OpenDataLab	The physical infrastructure the Open4Citizens project intends to conceive, in order to support citizens' participation to co-creation with open data.
Persona (also: Stakeholder)	An archetypal description of the likely role that individuals from each key stakeholder group will play in the proposed Scenarios (for the OpenDataLab implementation)

Persona)	
Public service	A service provided by a government body to people living within its jurisdiction, either directly (through the public sector) or through financing a third party (agency or subcontractor).
Scenario	A structured description envisioning a possible, achievable and desirable future (for the implementation of the OpenDataLab)
Social impact	The effect induced [by a certain project or initiative] on the well-being of a community (and/or a less integrated group of people).
Social sustainability	The ability of a community to develop processes and structures which do not only meet the needs of its current members but also support the ability of future generations to maintain a healthy community. Source: http://www.businessdictionary.com/definition/social-sustainability.html#ixzz2y75dJTij
Urban services	Services at the urban scale, aimed at creating public utility. They are not necessarily initiated by the local government.
User Journey	A series of steps (typically 4-8) which represent the typical way in which a Persona might interact with the Scenario one is designing to accomplish the full set of key activities assigned to them

1 Executive Summary

The purpose of Deliverable D4.4, the final version of the Open4Citizens Scenarios, is to describe the scenarios of deployment of the project's Open Data Labs in collaboration with the local community, and further elaborate this analysis to include a projection of the social good that it is estimated that can be created with such proposed deployments. The Open4Citizens' work on the Open Data Lab scenarios has proceeded in two iterations, D4.3 and D4.4, which are to be considered as two stages of a conceptually connected work. Whereas D4.3 defined the methodology of analysis, the features and the future perspectives of the scenarios of implementation of the Open Data Labs (ODL), D4.4 revisits these contents one year later and updates these with information on the actual plans for implementation of the ODLs. In addition, it also extends the methodology to elaborate on the societal impact of these scenarios, by incorporating Social Return on Investment (SROI) analysis as a tool to make the value of the O4C model explicit.

The document contains an extended discussion of the scenarios of implementation of ODLs at each pilot location. In the year between the first and second iterations of scenario analysis, the implementation plans for most ODLs have coalesced in a partnership with a public institution, be it a university (Copenhagen, Milano) or a municipal-level public administration (Barcelona, Karlstad). The ODL in Rotterdam the ODL is expected to take a more multi-stakeholder governance structure from the beginning, albeit with the strong backing of a local university (TUDelft) in the short term. This pattern suggests the need for an established institution, with its existing structure and resource pool, to take the lead in guiding the ODLs in the transition to a sustainable post-EC-funded-project period.

The Social Return on Investment analysis offered in the document provides an assessment of the amount of societal impact that it is estimated will be generated by running an O4C hackathon on the topic of underappreciated tangible and intangible cultural heritage, with an interdisciplinary group of 60 participants, and hosted in a prospective Open Data Lab in a library of the Greater Barcelona town of Santa Coloma de Gramenet. The results of the analysis are positive, with 8,02€ of societal value generated for every € invested in the open data hackathon. Societal value accrues to a wide cross-section of stakeholders, being especially relevant in terms of the creation of new open data based innovations for cultural heritage valorisation, their visitor attraction potential, and the wider positive externalities for the community relating to the deployment of those innovations.

Thus, the deliverable constitutes the basis on which to build the sustainability models of the deployed ODLs in subsequent deliverables. It provides as well a strong backing for the successful deployment of ODLs in the aforementioned pilot locations and beyond, via the European Network of Open Data Labs, with an analysis of the challenges and opportunities to be faced by a range of clearly described ODLs being launched at the five pilot locations, and a thorough, evidence-based assessment of the benefits for the wider community of the Open Data Lab model.

2 Introduction

The final report on the Open4Citizens Scenarios follows on the steps already taken a year ago in the initial draft version of the document. Whereas D4.3 defined the methodology of analysis, the features and the future perspectives of the scenarios of implementation of the Open Data Labs (ODL), D4.4 revisits these contents one year later and updates these with information on the actual plans for implementation of the ODLs. In addition, it also extends the methodology to elaborate on the societal impact of these scenarios, by incorporating Social Return on Investment (SROI) analysis as a tool to make the value of the O4C model explicit.

This deliverable is structured in two main sections. After a short introduction to the purpose and features of the document, Section 3 provides an extensive update of the scenario building methodology followed to reflect on the O4C scenarios of implementation of the Open Data Labs, and extends the analytical framework with an in-depth discussion of the main features and role of the Social Return on Investment (SROI) methodology. This is followed by Section 4, which then presents the Open4Citizens scenarios of implementation at each of the pilot locations. The document is finished with some concluding remarks and an exploration of the next steps to be followed.

In the creation of these contents, the editors of this deliverable are in debt with the authors of the key documentation existing on the SROI methodology, as well as in associated literature. In particular, we should thank the quality of the texts in the SROI manual produced by the Cabinet Office of the British Government (Nicholls et al., 2012), as well as the foundational document of the methodology developed by the New Economics Foundation - nef (Lawlor et al., 2008). Also, we would like to thank the tips and advice provided by Ben Carpenter, Social Value UK's CEO, to inform the deployment of the methodology for the purposes of this deliverable.

3 A Refined Methodology for Scenario Building

This section iterates the scenario building methodology presented in the first version of the document, and extends it by incorporating an additional step to estimate the social value that could be generated by the network of Open Data Labs, inspired by the Social Return on Investment (SROI) methodology.

3.1 Iterating an Open4Citizens Scenario Building Methodology

The Open4Citizens work on the Open Data Lab scenarios has proceeded in two iterations, D4.3 and D4.4. These are to be considered as two stages of a conceptually connected work. In the first version (D4.3), produced in the interim between the first and second hackathon cycles, the O4C consortium set forth to develop a workable, useful and cost-effective methodology for reflecting about possible, desirable and optimal scenarios of implementation of Open Data Labs. This collective effort coalesced in an O4C scenario building methodology composed of three interlocking building blocks:

- The **scenario** – a structured description envisioning a possible, achievable and desirable future for the implementation of the ODL concept (as delineated in in a pilot location).
- The **stakeholder personas** – the archetypal descriptions of the likely roles that individuals from the key stakeholder groups will play in these scenarios.
- The **user journeys** – a series of steps (typically 4-8) which represent a typical way in which a persona might interact with the scenario you are designing to accomplish the full set of key activities assigned to them.

Stakeholder personas, their user journeys and the expected impacts of the scenario were to be regarded as convenient generalisations, which were used to provide more details on the scenario categories. The ultimate purpose of these hypothetical scenarios, including the set of stakeholder personas and their user journeys, was to serve as a useful, actionable tool to start a productive dialogue with the local community, with an eye towards the implementation of an Open Data Lab in each of the pilot locations.

In the second version, realised in this document (D4.4), the focus lays on elaborating actual scenarios, based on our actual implementation plans in collaboration with the local community, and extending the analysis further to include a projection of the social good that it is estimated that can be created with our proposed deployment of the Open Data Lab in our pilot location.

The structured description of the scenarios builds upon the same foundations as in the first iteration, and uses the same templates. However, the orientation of the scenario descriptions is much less hypothetical this time, and details as concrete as possible are added: names of local entities, local communities, public officers, neighbourhood associations, etc. This content provides the empirical basis for the elaboration of the impact maps in the initial steps of the SROI methodology. The SROI approach is used it as a valuable tool to estimate, in the framework of a structured and internationally recognised exercise, the social value generated by these scenarios of implementation of Open Data Labs. Ultimately, the goal of these SROI analyses resonates with the general objective of scenario building in the O4C project, which is to render explicit the tangible and intangible societal

impact of the ODL model vis a vis several possible alternative models, and gain traction with key stakeholders towards an increased sustainability of the network of Open Data Labs.

To avoid potential misunderstandings of the contents of the SROI analyses in the context of the Open4Citizens project, it needs to be stated explicitly that this is *not* an exercise that could be useful to compare or rank the different labs. Every implementation of an Open Data Lab is highly embedded in different contexts, and responds to different sets of local conditions, opportunities, price levels and incentives. The combination of these factors precludes any simple mechanistic aggregation of the “apples and pears” sort, and introduces a qualitative element of nuance and careful discussion in any international comparison. Conversely, the SROI analyses contained in this document are to be regarded as an exercise to gain awareness of the broad range of positive impacts across several groups of stakeholders, that we might achieve if we implement our Open Data Labs as foreseen, and to use these actionable insights to focus our plans in making these potential impacts a reality.

3.2 The Social Impact Analysis

3.2.1 An introduction to SROI

The SROI analysis is a process of understanding, measuring and presenting reports on the social, environmental and economic value that is being created by an organization. The SROI framework is an approximation to the measure of this value which, based on the theoretical corpus and the practice developed for cost-benefit analysis, social accounting and social auditing, attempts to capture social value through the path of translate the social impact objectives into financial and non-financial indicators. The SROI analysis measures the value of the benefits in relation to the costs to achieve these benefits. This is a ratio between the current net value of the profits and the current net present value of the investment. For example, a ratio of 3: 1 indicates that for every euro invested, € 3 of social value has been generated.

An SROI relationship is a comparison between the value generated by an intervention and the investment required to obtain this impact. The philosophy of SROI is based on the principle of the monetization of social impacts, an approach in which they are assigned an estimated quantitative value to qualitative elements, in such a way that both financial and non-financial impacts are expressed based on a common unit in a comparable way. The social return on investment (SROI) is a framework for the measurement and accounting of this much broader concept of value; it seeks to reduce inequality and degradation of the environment, and to improve global welfare through the internalization of costs and social, environmental and economic benefits in the decision-making process. Therefore, it should be emphasized that the SROI is concerned about the value, not the money. The currency is simply a common unit that allows the comparison between magnitudes, and as such it is a useful and widely accepted form of transmitting the volume of value.

However, it would be an error to reduce a SROI analysis to a single number or ratio that alone already expresses the social value created. Rather, the true value of an SROI analysis is that it represents a framework and an opportunity to explore the real impact of the organization's activities, in which the principle of monetization plays an important role, but in no case exclusive. In the same way that a business plan contains much more information than financial projections, the SROI is much more than a simple name. It is a story about change, on which to base its decisions, condensing studies of specific empirical cases and qualitative and quantitative information on the set of dimensions of the organization's activity.

In SROI analysis can take many different forms. It can cover the social value generated by an entire organization, or focus on only one specific aspect of the organization's work, such as a department, project or task. There are also a number of ways to organize the very fact of performing an SROI analysis. It can be done largely as an internal exercise of the entity that involves a large majority of the staff or, at the other extreme, can be led by an external investigator who collects the necessary entries independently.

In short, SROI is a tool that visualizes the social value created by an activity, project or entity with data that can be understood by a series of interest groups -of which we are trying to influence (investors and those responsible for the formulation of policies), to those of whom we need support (clients, beneficiaries, local community), to those whose support is integral to the quality of our success (personal).

Two major types of SROI analysis can be performed:

- Evaluation, which performs a retrospective estimate of the social value generated based on the actual results of some activities that have already taken place.
- Forecast, which provides an estimate of the social value that will be created if the expected results of some proposed activities are met.

The forecasts of SROI are especially useful in the stage of prospecting and planning an activity. This type of analysis can help propose modifications to maximize the impact of the investment, and they are also useful for identifying what needs to be measured once the project is in operation.

The lack of reliable data on the results of an intervention is one of the most common challenges when performing a SROI for the first time. To successfully complete an evaluation SROI, you will need data in the results, and a SROI forecast will provide the basis for a framework to capture the results. For this reason, it is often preferable to start using SROI by forecasting the social value of a future activity, instead of evaluating the one already passed action, since this ensures that the correct data will be obtained and the collection systems in go for a full analysis in the future. The level of detail required will depend on the purpose with which the SROI analysis is executed. A brief analysis for internal purposes will most likely involve less time and effort than a full report for an external audience that must meet 100% with all the requirements for its verification by third parties.

3.2.2 The six steps of SROI

Completing a comprehensive analysis with the SROI methodology involves six stages (Nicholls et al., 2012):

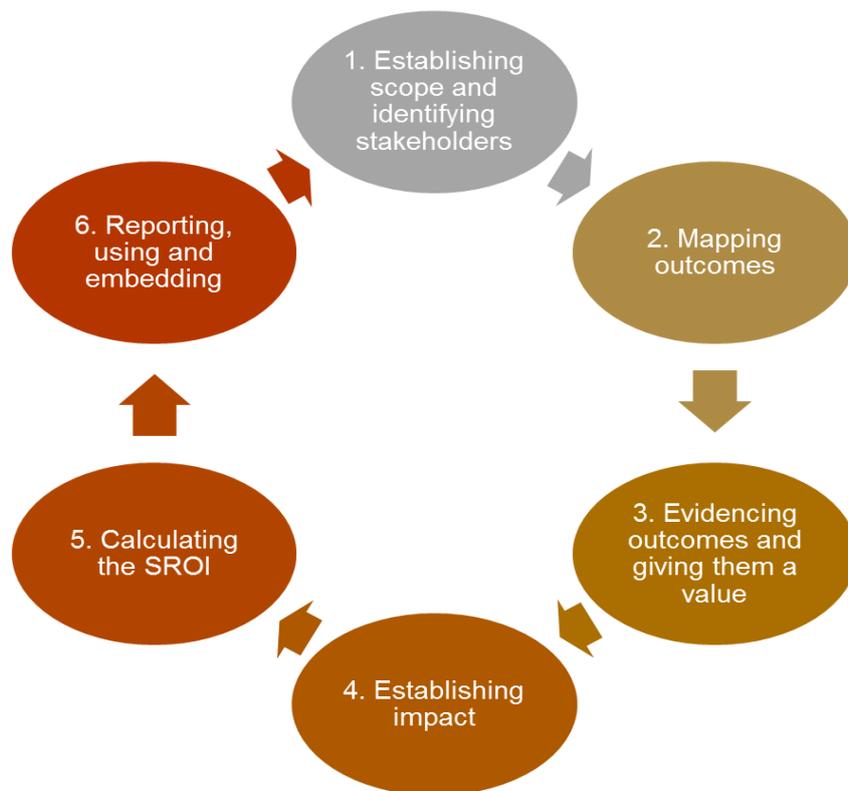


Figure 1. The six stages of SROI

These six phases involve the following actions:

1 Clearing boundaries about what SROI will cover, how to cover, and who to be involved. It is important to define clear limits on the extent to which the SROI analysis will be carried out, which interested parties will participate in the process, and the roles and responsibilities that will be requested.

2 Engaging with stakeholders to discuss the impact map with theory of change to show the relationship between program inputs, outputs & outcomes. Through the participation and interaction with the interested parties, an impact map is developed, or "theory of change", which shows the relationship between the entries, the outputs and the results.

3 Developing indicators of outcome and monetizing the outcome. This phase consists in selecting the data to demonstrate with empirical evidence the degree to which the mapped results have actually occurred, and then allocate a monetary value to be able to value them aggregately as a whole.

4 Determining the scope of the impact but do not over-claim. Once evidence has been collected on the results and we have a quantitative estimate of its volume through the monetization mechanism, those factors of the changes that could have occurred in any way or can be attributed to the result of another intervention have been to eliminate from consideration.

5 Adding up all the benefits, subtract any negatives and calculate SROI. This phase involves adding all the positive benefits that occurred, reducing any negative factors that may have been caused, and comparing the final sum of the result with the investment made. In this step, it is also where we have the opportunity to gauge the sensitivity of the results, that is to say, to the extent to which small changes in estimates made in previous steps could result in large fluctuations in the final obtained ratio.

6 Sharing findings and recommendations with stakeholders, and embedding good outcomes processes within the organization. Easily forgotten, this last step is vital, since it involves sharing the results of the analysis with the interested parties and responding to their comments, incorporating possible improvements to the processes of the organization and enabling the verification of the report by third parties.

3.2.3 A universal measure of value?

Given these features, the SROI methodology has been chosen as the most appropriate one to serve as a reference point for the evaluation procedure of the impact of the Open Data Labs model. As mentioned before, the SROI methodology is used for the purposes of projection of proposed projects and evaluation of existing projects, with the result of producing a tangible report. It can be used to evaluate both backwards (later) and forward (forward-looking) over time, taking into account both the inputs and outputs of the activity. Regarding the temporal extension of the analysis, it can be adapted to short periods of time, and has a multilevel perspective that encompasses the micro, meso and macro elements of the observed social reality. Finally, it provides a methodologically robust approach that is based on a mapping of the global impact, to proceed with its monetization as an instrument for aggregating comparable elements. In addition, as an important factor in the face of the credibility of the analysis carried out, in a set of meta-analyses carried out to date, the SROI methodology is one of the most used, to the point that several researchers consider it as the closest to a standard in the field of social return evaluation (for example, see Zappalà & Lyons 2009; Kumar 2011; or Krley 2013).

In short, the SROI methodology is one of the most solid, worked and extended options in the current scenario of the estimation and evaluation methods of social impact (Arvidson et al 2013, Millar & Hall 2013). However, like any methodology in the emerging phase and still in configuration, it is not exempt from its critics. In fact, it should be noted that since the years after the first analyses were carried out in empirical cases, and the beginning of the popularization of the SROI, research papers have already appeared in which he was aware of the potential limitations in this way to measure the social impact (for a perspective of the debate, see Mertens et al 2015).

Some authors have come to the extreme of suggesting the futility of the SROI's aspirations, especially with respect to two key points (Gargani 2017). One, the lack of robustness of the principle of monetization ("if two different people repeat the analysis, it should give them the same result, but would it really be that way?"). And the other, the ontological impossibility of reducing to a comparable monetary intermediary realities that are by their incomparable nature ("if we assign a monetary value to happiness or trust and we try to add them at the cost of renting an office or buying a table, aren't we mixing apples and pears? ").

One of the most consistent (and constructive) critics of the SROI, Daniel Fujiwara, summarized the most problematic and epistemological elements of the methodology in seven key points, which can be summarized in three strong ideas. One, the SROI has a definition of social value so broad and generic that it can make the results of the analysis end up meaning nothing. Two, the mapping of involved parties, inputs, outputs and results depends too much on the discretion of each practitioner of the method, and can become confusing and not rigorous. And three, the operationalization of the principle of monetization and its correction factors is based on calculations that demand mass estimations "on eye", and are too easily manipulated (Fujiwara 2015).

Although the merits and demerits of the SROI methodology have been debated, and this issue is and will be a field open to academic debate, the tendency in the last studies published in the subject is to try to synthesize the basic methodology and the constructive criticisms that have been appearing (for example Nicholls 2017, or Cooney 2017). Therefore, it is about collecting the best practices of the professionals who use it on the ground, and incorporate the precautions and principles of caution of the critics (Yates & Barra 2017). Following this open path, for the adaptation of the SROI methodology in an implementation for the Open Data Labs network, the aim was to move forward with this approach, trying to maximize the many positive aspects and minimize the few negative aspects.

4 The Open4Citizens Scenarios

In this section, the initial, hypothetical Open4Citizens scenarios of the first version of the document are updated to reflect the current plans for deployment of Open Data Labs in the project’s pilots. The actual implementations of the Open Data Lab scenarios at all five pilot locations are described in detail, using the analytical framework devised in the first iteration of this document. For convenience, Table 1 with the summary of the Open Data Lab scenarios at each pilot location is provided below:

Table 1. The Open4Citizens implemented scenarios

Open Data Lab Barcelona - ‘Athenaeum of Data’: the OpenDataLab as a Citizen Innovation Laboratory located in a Public Library
Open Data Lab Copenhagen - A Resource Hub for Open Data Based Design and Learning
Open Data Lab Karlstad – Community Experience Data Lab Kronoparken (xKRP)
Open Data Lab Milano – The Open Data Lab at Politecnico di Milano
Open Data Lab Rotterdam - The Co-located, Co-owned Open Data Lab

The five O4C pilots and emerging Open Data Labs have created the scenarios above as a result of consistent, in-depth engagement with the main stakeholders involved in the two cycles of hackathons run at each pilot location over the course of the project. In addition to the pilot teams’ sustained engagement, points of focused engagement with stakeholders took place in the second cycle of hackathons through stakeholder interviews carried out by consortium member Antropologerne in relation to the hackathons. Reflection on the emerging ODL scenarios locally and as a consortium took place as part of the process of gathering and reflecting on evaluation materials. This took the shape of contribution story meetings in the pilot teams led by Antropologerne before and after each hackathon. As such, the pilots have consistently trained their reflections on core components of their ODLs and how their particular pilot might gain inspiration from processes taking place in the four other pilots. O4C project deliverable development has further supported this reflection.

In comparison with the initial hypothetical scenarios, there has been an evolution in the way the pilots perceived the likely ways in which ODLs could be implemented. In D4.3, there were three high-

level generic scenario categories listed, which covered the range of empirically-based local pilot scenarios that were envisioned by the pilots at that point in the project. These can be summarised as “ODL as a service in a Fab Lab”, “ODL as an independent incubator”, and “ODL as a public service”. If we attempt to map the change in strategic thinking that has occurred in the project as regards ODL implementation in the year between the first and second iterations of scenario analysis, we can detect that, in the end, the implementation plans for most ODLs have coalesced in a partnership with a public institution, be it a university (Copenhagen, Milano) or a municipal-level public administration (Barcelona, Karlstad). Only in Rotterdam the ODL is expected to take a more multi-stakeholder governance structure from the beginning, albeit with the anticipation that in the short term a certain degree of leadership from a local university (TU Delft) will be required to keep the momentum going. This pattern very likely reflects the need for an established institution, with its existing structure and resource pool, to take the lead in guiding the ODLs in the transition to a sustainable post-EC-funded-project period.

In the remainder of this section, we present the updated scenarios for the five open data labs emerging from the O4C project. The brief description contextualises the lab in its specific context. For each lab, it is essential to identify the main driving force behind it. This owner will be in charge of incorporating relevant elements of the O4C approach to service innovation using open data into the lab, ensuring that this is done in a locally appropriate way, based on local needs, and with an eye to maximizing the social value created. Finally, for each Open Data Lab scenario, we identify the main strengths, weaknesses, opportunities and threats inherent in the proposed Open Data Lab set-up.

4.1 Open Data Lab Barcelona - ‘Athenaeum of Data’: a Citizen Open Data Innovation Laboratory located in a Public Library

Open Data Lab Barcelona - ‘Athenaeum of Data’: a Citizen Open Data Innovation Laboratory located in a Public Library	
<i>Description</i>	The Open Data Lab will be deployed as a network of Citizen Innovation Laboratories located within the premises of four public libraries in the Greater Barcelona area. This implementation will adapt, implement and evaluate the deployment of the O4C open innovation methodology based on open data from the Open Data Labs, to generate an Athenaeum of Data model that opens up to the open innovation paradigm the services currently offered by the Library Network of the <i>Barcelona Provincial Council</i> (Diputació de Barcelona), and complement its current service offering of training and capacity-building activities with an environment that empowers the citizen to make effective use of open digital assets (data, software and hardware) to generate innovations that are valuable for the

	<p>community.</p> <p>In the paradigm of the Atheneum of Data, digital data is conceived as a common good, a resource that should be accessible in an effective way for all members of society. Not like a new oil or new oil to exploit unequally, but as a new soil or new ground to manage in a sustainable way for the common good. This approach makes for strong synergies with public libraries, well established and socially well regarded institutions which are currently in a process of adapting their mission to the new realities of the digital society in the framework of the Bibliolabs ('library laboratories') programme (https://www.diba.cat/en/web/biblioteques/bibliolab1).</p> <p>In the first phase of implementation (May 2018 – February 2019), it will carry out four pilot tests in four selected municipalities in the Greater Barcelona area where there are libraries of the network, to train users and library professionals in competences, processes and innovation skills in open data, as well as identifying the possibilities and opportunities awarded by the digital commons. It will also explore the conditions, requirements and opportunities to upscale the model, to generate a network of Athenaeums of Data within the set of 225 libraries of the network of the Barcelona Provincial Council.</p> <p>The activities in this first phase will begin with a basic training process on open data based digital social innovation, which will be attended by library professionals and citizen users. These capacity-building actions will provide the foundation for four community-led innovation processes centred on the four local pilot libraries which will produce a product or service based on open data, with social and community value, and that addresses a problem or challenge of the area served by the library. Possible examples of results, merely informative, could be: a virtual exhibition that explains the stories of the reprisals by the Franco regime of the municipality based on the existing open data on the subject; a simple application that geolocates on a map of the area the elements of local cultural heritage that are of interest to visitors; an open calendar that includes the set of cultural activities programmed around the library; a repository of data created by community contributions that includes the elements of intangible cultural heritage (the characteristic patterns of local artisans, dances and dresses of local festivals); and a long etcetera still to co-create with the citizens.</p>
Owner	<p>Owned, hosted physically and funded publicly mostly by the Barcelona Provincial Council, but with an open and participatory governance structure. This includes an advisory Board of Councillors ('Comissió Bibliolabs'), formalized as a partnership of</p>

	quadruple helix entities.
Strength	<p>Normalised public funding for structure and projects reduces budgetary stress.</p> <p>Easier to find synergies with other public administration' projects (e.g. in social services, education, culture, etc.) and promote internal innovations, which can easily be transferred beyond the participating libraries.</p> <p>A network of physical locations with quality assets and resources (communication, IT systems, networking, etc.).</p> <p>Strong chance for upscaling the open data labs, by replicating open data labs in the existing network of 225 libraries in the Greater Barcelona area.</p>
Weaknesses	<p>Dependency on public officers and bureaucracies to green-light specific activities may slow down agile open innovation projects, leading to inefficiencies and community drop-off.</p> <p>Organic dependency on public officials may lead to undue interference and attempts at shaping the outcomes of the community-led open data projects, betraying the citizen-centeredness of the open data labs.</p>
Opportunities	<p>Greatly enhanced opportunities to reach out to large audiences and achieve significant impact, by capitalizing the communities of users around each of the 225 public libraries, covering 5,5M citizens and netting more than 20 million visits a year.</p> <p>Economies of scale by sharing training assets for capacity-building actions, best practices for local open data innovation, and community-focused projects across the participating open data labs.</p> <p>Experimentation on public-private open governance structures generates knowledge exchange network effects and positive externalities for local digital social innovation ecosystems.</p>
Threats	<p>Political considerations unrelated to performance may lead to program cancellation.</p> <p>Too close perceived association with Barcelona Provincial Council may disengage actors which are critical with its policies, both private agents with grievances on unrelated topics and public entities managed by competing political parties.</p>

4.2 *Open Data Lab Copenhagen - A Resource Hub for Open Data Based Design and Learning*

Open Data Lab Copenhagen - A Resource Hub for Open Data Based Design and Learning	
Description	<p>At Aalborg University expertise on how best to equip citizens to make more meaningful use of data, span several current research projects, notably the Open4Citizens pilot team within the Service Design Lab (https://servicedesignlab.aau.dk/) at AAU/Copenhagen as well as a research team anchored within the Department of Communication and Psychology in the shape of the ODEdu (http://odedu-project.eu/) EU project funded through the Erasmus+ programme: This project at AAU/Aalborg aims to boost open data education and skill levels across academia/students, businesses and public authorities/employees.</p> <p>In joint effort the researchers across the two existing projects have committed to create a “resource hub” supporting students across several educations to begin using open data as a resource in diverse project work. We “pool together” in synergy the best results from across the two research projects – in terms of expertise, workshop experience, tools, methods, and e-learning modules. These resources will be made digitally available.</p> <p>Through courses and modules, the next step is to target the Service systems design master students as well as students of communication and psychology. Looking into the future we are keen to make the resources more widely available, ideally through collaboration with the AAU Innovation unit (http://www.aau-cph.dk/samarbejde/virksomheder/) supporting AAU students alike in entrepreneurial and incubation activities spinning off from their study activities.</p> <p>In contemporary society; data pops up everywhere and is of increasing relevance across disciplines and specializations. Our motivation is to ensure that AAU offer a continually updated ‘resource hub’ of contacts, resources and activities to motivate, make curious and sufficiently provide academic courses on better use of data for all AAU students. Through equipping multidisciplinary students with a genuine interest in and capability to draw on open data as a resource, we humbly but effectively aim to push forward a continual Open Data agenda. We will help train service design students to use open data, while bringing forward the growing research area of integrating Open Data into existing design practices.</p> <p>A concrete first step, is the definition and development of a 5 ECTS teaching module around design and learning based on open data. This will unfold as a</p>

	<p>guided process that span inspiration, ideation and implementation – inviting experimentation and trying out in practice how to make best possible use of data as part of this process; for students with a curiosity towards – but not necessarily any prior training in working with data.</p> <p>Within the environment of Problem Based Learning at AAU such course may invite the students to work with (open) data in their semester projects, also often with external organizations, companies or public administration.</p> <p>We start from a humble but strong base at the university, but we aim to become a respected reference place for policy makers and public administration – as well as to the general public.</p>
<p>Owner</p>	<p>Overall, this initial instantiation of the “AAU OpenDataLab” will remain owned within AAU. Concretely, in this initial phase it will be hosted within and connected closely to the Service Design Lab at AAU – in combination with the researchers involved from the Department of Communication and Psychology, notably associate professors Mette Skov and Tanja Svarre, with their affiliated research assistants.</p> <p>The lead initiator and main owner of the initiative remains the director of the Service Design Lab and lead coordinator of Open4Citizens; professor MSO Nicola Morelli and his team, with a motivation to bring (open) data more strongly to play both within the Master program in Service Systems Design and research activities around designing with data.</p> <p>Currently we don’t yet have a dedicated space, beyond that of the existing Service Design Lab, however an extension of this space may already be under way in near future.</p> <p>From this anchor point, a key motivation is to continue networking, collaboration and dialogue with possible open data suppliers (e.g. Open Data DK, Copenhagen Solutions Lab), sparring partners/other academic data-oriented labs (e.g. Ethos Lab/IT university of Copenhagen, TantLab/AAU), as well as the Open Knowledge DK contacts.</p>
<p>Strength</p>	<p>The strength of the “Open Data Resource Hub”, is not only the rich access to the university infrastructure within AAU in general. The initiative furthermore forms part of the dynamic Service Systems Design Lab; a thriving research group and service design environment. Also, it is developed as a support to a Service Design</p>

	<p>master, therefore it integrates its activities with those of that master, e.g. monthly gatherings/talks and guest lectures, workshops etc.</p> <p>Furthermore, it serves the purpose of promoting, using and developing not only the tools developed within O4C – but also the materials, modules and expertise under development through the ODEdu project: Allowing for both students and employees within public authority to better take advantage of available data resources - becoming aware and more data curious: on basic level and on a more technically detailed level.</p> <p>This involves resources such as: Data visualisation tools (as inspiration to citizens), Toolkit (as design tool), Facilitators (for hackathons or design sprints), Service designers (for consultancies about designing with open data), Data repository (for temporary or user generated data).</p> <p>Locally, when looking into the future - when fully operative, the AAU-ODL will possibly include a space for students to incubate their ideas. Beyond the courses offered during master programmes, we will initiate activities such as hackathons or design sprints, activating together both the alumni community as well as external partners such as municipalities or public administrations that may be interested in supporting specific projects with ODL.</p> <p>Globally, the AAU-ODL, will form part/anchor for the European NoODL.EU and utilise any possible channels (possibly funded by COST or RIA actions) for increasing international contacts.</p>
<p>Weaknesses</p>	<p>External/Extra funds are not yet guaranteed for the development of activities, workshops, promotion and dissemination around activities. E.g. resources need be found as part of the existing framework for research activities and adjustment/update of e.g. the Master in Service Systems Design.</p> <p>In the longer run funds for a PhD position or Post Doc should be found to appropriately drive courses/activities tied into the study program as well as develop the research activity further. Currently, specific expertise relating to designing with data; e.g. notably scraping, visualizing and manipulating data, will need to come through bringing in external guest lecturers to run particular selected workshops.</p> <p>For bigger events and initiatives – as well as for the possible dedicated space, the AAU-ODL will depend on support and priorities from within AAU.</p> <p>Also, for working on concrete and real cases – we depend on continual positive</p>

	<p>networking and collaboration with relevant partners, e.g. such as that of Open Data DK, CPH Solutions Lab or Innovations Huset.</p>
<p>Opportunities</p>	<p>The resource hub may seem as a humble starting point but is intended to work as an anchor point and an ambitious stepping stone towards promoting, developing and growing a much needed and relevant capacity among future service designers to encompass methods to work with and design based on open data. As such, we can extend to involve actively the active network of alumni and students as ‘junior scholar’ and volunteers in the lab – giving bottom-up shape to initiatives as they may lead and run spin-off workshops, sprints and jams as part of their study activity – while collaborating closely with researchers.</p> <p>As the hub becomes stronger in terms of research and student activity, we become stronger positioned as the ‘to-go-place’ for public authorities and NGO’s eager to work in practice with participatory design methods incorporating data. Through such position, we will become also able to advice and give policy recommendations or consultancy work.</p>
<p>Threats</p>	<p>The Lab will depend on synergy between activities and resources found as part of other project activities, until dedicated funding is secured either from EU or national sources. In those project applications we consider administration costs, support to the everyday administration of the ODL, as well as the physical space and the management of the online platform.</p> <p>Also, we depend on an ability to demonstrate the usefulness of our offer, to other entities (businesses, public authorities, etc.). E.g. by demonstrating quickly, the added value of close collaboration – and the service offered by the hub of researchers and students.</p> <p>It may work as a threat to involvement and engagement from interest groups, NGO’s and citizens, that the AAU-ODL is anchored within the University, however, we strive to maintain open doors and invitations that go out to citizen groups interested in the topics we cover through design and data activities.</p>

4.3 *Open Data Lab Karlstad – Community Experience Data Lab Kronoparken (xKRP)*

Open Data Lab Karlstad – Community Experience Data Lab Kronoparken (xKRP)	
Description	<p>Community Experience Data Lab Kronoparken (xKRP) is a conceptual and mobile open data lab spun from the O4C-approach. It's focused on developing, testing and evaluating visualization, interaction and use of data where the local community is the end user. A concept where data-based products, services and processes has a focus on collective use, social services, community development, gender equality and diversity. xKRP is a cooperation between civil society, business, public sector, research institutes and academia and based on the overall idea and methodology of Open 4 Citizens.</p> <p>The idea of xKRP is to allocate the local community as a venue for the testing and development of data-driven ideas and methods. Ideas that in the end will benefit society as a whole. With a focus on an equal and egalitarian meeting between user and developer, companies, organizations and individuals can develop and test methods, tools and forums that makes data more accessible, relevant and useful. xKRP thus helps both companies to strengthen their competitiveness, the public sector to digitize its civil services and improve their social information and the individual local community becoming digitized as a collective process.</p> <p>Establishment phase 1 of xKRP has started in Kronoparken in Karlstad and focus on the establishment of the organization, development of methodology, testing methodology and the development of long-term business and development models. Over time the focus is to create an economically sustainable lab and the possibility of the establishment of similar labs in other locations in Sweden. The plan of the fall of 2018 is to implement permanent service in Karlstad, and approach an xKRP-spin off collaboration. The project spanning from Nov. 2016 – dev 2018, has a budget of 4,7 million Swedish kronor, in which 2,3 are funding from VINNOVA - The Swedish Innovation Agency.</p> <p>The vision of xKRP is a data smart every day in a data driven society.</p>
Owner	<p>The project manager is Research Institutes of Sweden and RISE Service Labs. Project partners are the County Council of Värmland, The Swedish Consumer Agency, Karlstad University, Karlstad Innovation Park, the NGO Ett öppnare Kronoparken, Canwz AB, Thindermaps AB and RISE Interactive Institute</p>

<p>Strength</p>	<p>Public funding has been secured for getting the lab up and running.</p> <p>Strong local support from local stakeholders a great platform for connecting stakeholders from different sectors. . A clear methodology for how to involve citizens and make the processes as relevant for the community as possibly.</p> <p>Has already created a brand thanks to the funding from VINNOVA, meaning that the lab is being invited to speak ad conferees and seminars.</p>
<p>Weaknesses</p>	<p>The limited number of people associated to the lab with deep tech. skills.</p> <p>A limited amount of customers in the region with direct relation to the theme of the lab.</p>
<p>Opportunities</p>	<p>xKRP has the opportunities to position itself as a national testbed for data-driven innovation and community values. The Research Institutes of Sweden include xKRP in its list of demonstrations facilities, and has stressed the need to empower citizens as a port of our mission.</p> <p>xKRP also has opportunities to expand (or move) its recourses and base to other regions or urban areas in Sweden, discussions which are currently ongoing.</p>
<p>Threats</p>	<p>The lack of regional interest from Region of Värmland and the County Council of Värmland board.</p> <p>The Värmland region is primarily focused on traditional industry or very general approaches to tech. It has been impossible to establish xKRP as a regional resource because of the fact it is not fully coherent to the regional development agenda. Because Open Data and Data-Driven Innovation is not a priority in the regional development plan, there is no funding to approach for the lab. This will, most likely, in the long run seek the owners of the lab to move its resources to another region.</p>

4.4 *Open Data Lab Milano - The Open Data Lab at Politecnico di Milano*

Open Data Lab Milano - The Open Data Lab at Politecnico di Milano	
Description	<p>The Open Data Lab in Milano will be deployed as a network of different institutions and organizations working with and for data towards urban service innovation. It will include Politecnico di Milano, Comune di Milano as main founders (at the moment a formal agreement is being prepared for signature having the two institutions equally committed towards:</p> <ul style="list-style-type: none"> • promotion of open data culture and transparency • creation of contests and initiatives for open data set creation and data disclosure • promotion of the ODL activities by different institutional channels and actors • activities and initiatives of citizens driven service innovation through open data • creation of a diversified and active network of supporting partners being owners and/or consumers of data <p>The supporting partners network is an open cloud of actors each having direct interest/s in the ODL task listed above. The implementation plan is based on 3 general activities:</p> <ul style="list-style-type: none"> • identification of the data needs in the local context (October 2017-July 2018) • identification of main data owners (September 2018- November 2018) • launch of initiatives being citizen driven and benefiting to step 1 and step 2 (always ongoing). <p>The first activity started in October 2017 with a meeting organized by the municipality simultaneously with the launch of the new municipal Open Data Portal. At that time an informal agreement between Politecnico di Milano and the Municipality allowed the collaborative organization of the meeting using the municipal open data portal as a driver to achieve the creation of a larger community of interests and practice with and for data. The main concept shared by all the participants along the several workshops is that data disclosure is a strategic and valuable urban service for a large number of urban actors and quadruple helix</p>

	<p>agents.</p> <p>The second activity is partially enabled by the first one especially in relation to data needs. The current small team composed by Politecnico di Milano and Milano Municipality is now still organizing Ws but at the same time using the revealed data need to identify owner of data possibly responding to them. This operation is expected to widen the cloud of possible partners of the ODL towards new data owners who will obviously present new data needs.</p> <p>Referring to new possible citizens' driven initiatives the ODL is already working on the following opportunities.</p> <p>The company in charge of the Metro 4 construction has finally disclosed the report of their ad hoc monitoring of the construction sites impact in the city (http://www.metro4milano.it/monitoraggio-ambientale/); the ODL has been contacted by a citizens organization to interact with the Metro company to make the information contained in the report disclosed as open data; the ODL is working on this in different ways and as soon as the data will be made available in an open format an hackathon will be organized to make data visualization usable by the citizens (this initiative is a sort of continuation.</p> <p>The ODL became part of a larger POLIMI initiative for the creation of interdepartmental research units (DATA@TER) representing a network, internal to Politecnico di Milano, of different researchers and research group working with/for data for/from territories. This Unit is basically made up of two well distinguished research working groups at Politecnico di Milano: URBASCOOPE (data interpretation for territorial analysis) and the ODL.</p>
<p>Owner</p>	<p>Owned by Politecnico di Milano and by Milano Municipality with an open and participatory governance; hosted physically by Politecnico di Milano, at Department of Architecture and Urban Studies. The role of supporting partners will be specified in ad hoc agreement case by case with a project driven approach so keeping the right flexibility to reduce bureaucratic constraints. The ODL will be guided by a scientific board representing different expertise and relational abilities.</p>
<p>Strength</p>	<p>Multiple needs are already embedded in the two founding institutions and this makes the commitment of the ODL clear and possibly persisting along time.</p> <p>The openness to supporting partners enables the ODL to act towards showcasing the economic opportunities made available by data disclosure reducing the</p>

	<p>emphasis on data property and widening investments on ideas and knowledge.</p> <p>Milano is considered a guiding city in Italy (more and more recently other cities in Italy talks about the “Milan way”. An evident success of the Milano ODL can make it a data icon to be replicated and diffused in other Italian city.</p>
Weaknesses	<p>Absence of dedicated public funding and not yet clear recurring alternative funding mechanisms. This makes the ODL crucially depending on the role played by the supporting partners.</p>
Opportunities	<p>The most important opportunity created by the ODL is to root the open data culture in the Milan Municipality. The incredible effort put in place by the Open Data alderman and the involvement of the municipality in the ODL represents the opportunity for the Open data to represent a relevant organizational and behavioral transformation.</p> <p>In Milan, the number of interested supporting partners is high as well as the number of companies and actors having a crucial role in the city and being interested in exploring business opportunities coming from open data and citizens driven services.</p>
Threats	<p>The recent international law on data protection already shows its effect and many discussions on data disclosure are strongly affected by the law used as a clear evident argumentation against data disclosure.</p> <p>Crucial to the success of the ODL Milano is the exemplary behavior of the Municipality in data disclosure and adoption: still it is possible to observe deep resistance in public officers who show to feel owners of data and do not share the resource even internally to the municipality.</p>

4.5 Open Data Lab Rotterdam - The Co-located, Co-owned Open Data Lab

Open Data Lab Rotterdam - The Co-located, co-owned Open Data Lab	
Description	<p><i>“The OpenDataLab visited our neighborhood...”</i></p> <p>The Open Data Lab Rotterdam will be a co-located and co-owned virtual community, without one specific physical location. In this vein, the ODL will be embedded in the network of the active civic community of the city, with the primary aim to support civic initiatives to flourish towards their visions.</p> <p>The area of Delfshaven has a bustling scene of civic initiatives, where individuals meet at various community events, form ad-hoc groups to pursue new projects, support each other or apply for subsidies together. The O4C hackathons throughout 2016-2018 have presented the hackathon Open4Citizens methodology to this network; supporting the different initiatives with data-aware co-creation events, where people can gain new data competencies and where initiatives can sharpen their challenges around open data.</p> <p>In the implementation, we build on our visibility and inspiring people to use the O4C methodology in upcoming events. We focus our implementation on word-of-mouth and local presence. As an example, ODL Rotterdam had an “interactive exhibition” at a local West Practice event (a public community event to promote learning opportunities in Rotterdam West), where visitors could get to know the various projects that were worked upon during the O4C pilot period, as well as local entrepreneurs could join for a data workshop.</p> <p>The expertise of the TU Delft team is in deploying strategic design competencies for societal change, and to empower different civic initiatives in defining preferred futures by having graduation students working with them. In the co-located and co-owned OpenDataLab, we intend to provide such a “designers as facilitators” support for the different members of the network.</p> <p>In practical terms, a co-located and co-owned OpenDataLab is primarily a virtual community, organized in e.g., a Facebook or Meetup group. These groups then can organize the community in different ways, such as using the group for discussions, promote events or create new open data events.</p>
Owner	<p>A co-owned ODL would mean a fully transparent organization owned by its members. Each members of the network are equally represented, and in an organizational structure that can organically change over time.</p>

	<p>In practical terms, the ODL will be “governed” (such as administration) initially by the TU Delft team, but with the intention to “pass the relay” as early as possible to enthusiastic members of the network to maintain the momentum.</p>
<p>Strength</p>	<p>A co-located, co-owned ODL's primary strength is its embeddedness of in the social infrastructure, supporting the shared vision of its members, fostering collaboration by bearing successes and failures equally.</p> <p>This structure would steer the various "city-makers" under the same platform.</p> <p>The OpenDataLab being a “virtual community”, no significant costs are required on infrastructure maintenance.</p> <p>The initial presence of TU Delft will ensure the continuity through ongoing graduation projects. Many students are interested in working with communities and bottom-up problems, and these students will be able to find interesting collaborations through the OpenDataLab. In this way, the members of the network will have access to creative and motivated design students to further their projects.</p>
<p>Weaknesses</p>	<p>A co-located, co-owned ODL, existing primarily as a virtual community has a low physical visibility unless major, shared efforts are put into PR itself. Furthermore, the social sustainability of the ODL needs to be taken into account; pro-active individuals are necessary to be interested and willing to put the effort into organizing ODL events.</p> <p>At the moment, no external and extra funds have been guaranteed to support running the ODL, for example subsidizing event participation, paying for workshop facilitators and so forth.</p> <p>Currently, while there is a strong network of community activists in Rotterdam, the involvement of technical and data experts have been low.</p>
<p>Opportunities</p>	<p>A co-located and co-owned ODL would ensure a democratic co-creation process, empowered by the diversity of various stakeholders in city-making. Such a network organization can react quickly to the organic, real life challenges in the urban space, and also provide value as a network.</p> <p>The ODL scenario being a low-cost model, it can easily be replicated in other areas, within other Rotterdam districts or beyond the city borders. Furthermore, if the ODL scenario is proven valuable, given a large enough community, ODL events can happen at an increased rate, or in parallel.</p>

	<p>In the Netherlands, it is very easy to create a more formal entity (e.g., NGO). If the ODL network finds the need to become a formal entity, for example to apply for grants, then it can be done with low effort. The stakeholders of the local Open4Citizens pilot have experience with this.</p> <p>The involvement of master design students from TU Delft provides the ODL network access to designers that are trained at a world-class level in design, and that have been proven well-equipped to support citizen initiatives and foster civic engagement.</p>
<p>Threats</p>	<p>A co-located, co-owned ODL at the moment is driven by the momentum of the O4C project, but this interest and visibility can flatten in the future. As there the power of this network is the ability to react quickly to new developments, it may happen that the members of the network move forward too fast and reorganize themselves or refocus themselves around other issues than utilizing open data.</p> <p>Since the ODL will operate in a climate adjacent to local politics, changing ways of city-making (e.g., based on political changes) can largely impact the collaboration between top and bottom innovators.</p>

5 The Social Impact of the Open Data Labs

The contents of the previous chapter described the scenarios of implementation of the Open Data Labs in each of the pilot locations. To strengthen these implementation plans and make explicit the value in them, a prospective SROI analysis of a typical Open Data Lab activity was performed. For this analysis, the focus has been placed on analysing the social good that may be reasonably expected to be generated with an archetypal, ideal, perfect hackathon process (pre-hack, hack and post-hack) that could be run in one of the Open Data Labs that are currently being implemented.

The templates for calculating SROI have been accessed online at www.socialvalueuk.org and completed according to guidance laid out in the literature on the method listed in Section 7. Below, we describe the hackathon for which the SROI is being calculated, present the raw data in the impact map, covering the first five stages of calculating SROI: 1) Establishing scope and identifying stakeholders; 2) Mapping outcomes; 3) Evidencing outcomes and giving them a value; 4) Establishing impact; and 5) Calculating the SROI. We then provide notes on the process of calculating SROI, in order to facilitate understanding of the result reached. This also attempts to address some of the shortcomings of the SROI approach identified in Section 3, above.

5.1 'Valorising our Hidden Cultural Heritage Hack' at Open Data Lab Barcelona: Assessing the Societal Value of a Typical Hackathon Process

The chosen activity is part of the operational plan of deployment of the Open Data Lab Barcelona for the year 2019. It entails a projected hackathon process, tentatively titled “Valorising our Hidden Cultural Heritage Hack”, on the topic of underappreciated tangible and intangible cultural heritage. The objective of this hackathon is empowering citizens to make effective use of open digital assets (data, software and hardware) to generate innovations that are valuable for the community.

The Social Return on Investment analysis offered below provides a forecast of the amount of societal impact that it is estimated will be generated by running such an O4C hackathon, with an interdisciplinary group of 60 participants, and hosted in a prospective Open Data Lab in a library of the Greater Barcelona town of Santa Coloma de Gramenet. Impacts are slated to start occurring right during the event, and gradually fade off over the course of three years.

The results of the analysis are positive, with 8,02€ of societal value generated for every € invested in the open data hackathon. Societal value accrues to a wide cross-section of stakeholders, being especially relevant in terms of the creation of new open data based innovations related to cultural heritage valorisation, the visitor attraction potential of the innovations, and the wider positive externalities for the community relating to the deployment of those innovations. These results should be interpreted with nuance, since there is a certain sensitivity to changes in the operationalisation of the impact indicators into financial proxies.

This is especially true for those factors for which no straightforward, uncontroversial translation of qualitative impact into currency values can be made (i.e. values of intangible outcomes such as data literacy, or societal values of the generation of startups). To address these concerns, the indicators for which lesser evidence existed to support currency values were tested and re-tested, searching for more extensive evidence and repeating the analysis with higher and lower values to assess sensitivity. These robustness tests did not change significantly the analysis, with conservative estimates yielding positive SROI returns on the 4-5 euro mark, and optimistic estimates providing SROI returns upwards of 12-14 euros per euro invested.

5.1.1 The Impact Map

Stage 1 		Stage 2 		
Stakeholders	Intended/unintended changes	Inputs		Outputs
Who do we have an affect on? Who has an effect on us?	What do you think will change for them?	What do they invest?	What is the value of the inputs in currency (only enter numbers)	Summary of activity in numbers
Citizens	Better access to local digital heritage, Increased data literacy	Time	2024,25	A general increase in data literacy
Interest groups (museums, galleries, etc)	Promotion of local digital heritage	Time	2024,25	
		Hackathon funding	4000,00	60 attendees are networked and know about each other's interests, skills and activities
		Open datasets	100	12 scenarios of usage of open data
IT experts/hackers/makers	Economic opportunities to exploit cultural heritage based services	Time	2024,25	6 functional prototypes of open data based apps which enhance access to local, previously hidden cultural heritage
Entrepreneurs	Economic opportunities to exploit cultural heritage based services	Time	2024,25	
Public authorities (city council, depts. of tourism & economic promotion, IT systems/open data and culture)	Promotion of local cultural heritage, Local innovation ecosystem building	Time	2024,25	Recommendations of cultural heritage datasets to be opened and insights to increase usability of existing open data
		Hackathon funding	16000,00	
		Open datasets	100	
Total			30.321,23	

Stage 3								
The Outcomes (what changes)								
Description	Indicator	Source	Quantity	Duration	Outcomes start	Financial Proxy	Value in currency	Source
How would the stakeholder describe the changes?	How would you measure it?	Where did you get the information from?	How much change was there?	How long does it last after end of activity? (Only enter numbers)	Does it start in period of activity (1) or in period after (2)	What proxy would you use to value the change?	What is the value of the change? (Only enter numbers)	Where did you get the information from?
attendees will have more capacity to work with data	increased capability to work with open datasets, comparable to having attended a dedicated open data training course	post-event questionnaire	60	1	1	60 attendees * average cost of 20h open data training course	150,00	Average of local private training providers: Iniciativa Open Data BCN and Click&Co
more critical thinking and government accountability	governmental inefficiency and corruption being spotted by vigilant citizens	post-event questionnaire	60	2	1	annual cost of inefficiency and corruption in spain / chance of citizen detection	1009,69	Spanish Markets Regulatory Commission (CNMC); Eurostat
synergies in projects and transfer of useful, actionable knowledge	savings in knowledge acquisition, local context scanning and best practices analysis in future projects and activities	post-event questionnaire	60	2	1	60 attendees * cost of 20h networking event	0,00	(already claimed in row 9)
strengthening of local open data innovation ecosystem	more participation of local entities in public procurement (36 attendees in hackers, & groups)	post-hack follow-up activities	36	2	1	value in public savings by increasing competition in public procurement	0,00	(already claimed in row 10)
digital business opportunity to exploit the app jointly, employment created	new sme's created generating business plans	post-hack follow-up activities	6	1	1	50000€ business plan * 6 apps	50000,00	EU SME Instrument
increased awareness and visits to local heritage sites	more tickets sold at local heritage sites	open data	2800	1	2	5% additional visitors * 4€ average ticket fee	4,00	Diputació de Barcelona Open Data
spilloff effect of visitor expenditure	more revenue in local restaurants	open data	2800	1	2	5% additional visitors * 10€ average meal	10,00	Diputació de Barcelona Open Data
cultural level of population contributes to second-order civility outcomes	savings in urban services (city cleaning, replacing vandalised items, safety, security)	one-off research	2800	2	2	5% additional visitors * 50€	50,00	Diputació de Barcelona Open Data, Domain-specific research
increased satisfaction with open data portals	cost of equivalent UX trajectory	post-event questionnaire	20	2	2	20h user trial * average cost of hour of user trial	100,00	Average of local private UX trajectory providers: Goteo and Platoniq

Stage 4 ➔				
Deadweight %	Displacement %	Attribution %	Drop off %	Impact
What would have happened without the activity?	What activity did you displace?	Who else contributed to the change?	Does the outcome drop off in future years?	Quantity times financial proxy, less deadweight, displacement and attribution
0%	50%	0%	0%	4.500,00
80%	0%	80%	50%	2.423,25
0%	0%	0%	0%	0,00
0%	0%	0%	0%	0,00
50%	0%	50%	0%	75.000,00
0%	0%	0%	0%	11.200,00
50%	0%	50%	0%	7.000,00
80%	0%	80%	50%	5.600,00
0%	50%	0%	50%	1.000,00

Total	106.723,25
--------------	------------

Present value of each year	
Total Present Value (PV)	
Net Present Value	
(PV minus the investment)	
Social Return	
Value per amount invested	

Calculating Social Return					
Discount rate		3,5%			
Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
4.500,00	4.500,00	0,00	0,00	0,00	0,00
2.423,25	2.423,25	1.211,63	0,00	0,00	0,00
0,00	0,00	0,00	0,00	0,00	0,00
0,00	0,00	0,00	0,00	0,00	0,00
0,00	0,00	0,00	0,00	0,00	0,00
75.000,00	75.000,00	0,00	0,00	0,00	0,00
0,00	1.000,00	500,00	0,00	0,00	0,00
0,00	0,00	0,00	0,00	0,00	0,00
0,00	75.000,00	0,00	0,00	0,00	0,00
0,00	1.000,00	500,00	0,00	0,00	0,00
0,00	0,00	0,00	0,00	0,00	0,00
0,00	0,00	0,00	0,00	0,00	0,00
81.923,25	158.923,25	2.211,63	0,00	0,00	0,00
81.923,25	158.923,25	2.211,63	0,00	0,00	0,00
					243.058,13
					212.736,89
					8,02

5.1.2 Methodological notes on estimates and calculations

In the course of a SROI analysis, a number of educated guesses need to be made to complete the fields required. The estimations and operating assumptions made, as well as the evidence obtained to ground those decisions, are an integral part of the value of a SROI analysis and, as such, these are provided below:

Notes on the assessment of inputs

1. Costs and returns for unpaid time: attendance at 60 participants, 2-day hack-event, including balanced set of stakeholders (12 each).
2. Cost of participants' time based on formula: (% of active population)*(total hours at hackathon)*(local average yearly salary/average yearly working hours). Sources: Idescat (Catalan Statistical Office), Open Data BCN Portal; figures for 2016.
3. Cost of accessing the required open datasets is set by estimating the cost per user access to an archetypal open data portal (total cost of 100K€ annually, average number of users per month at 5000), times the number of participants. Source: rough estimate provided by several local community and governmental sources.
4. Hackathon process organisation costs are minimum viable amounts for the entire process (pre-hack, hack and post-hack) based on project experience (see D3.4 and D3.5), and include venue (3500€) + consumables (500€) + catering (2000€) + audio-visual communication (photos and videos, 2000€) + and personnel costs (coordination, recruitment, facilitators, 12000€), with the assumption that these are split 80-20 between the public authorities and the sponsoring interest groups.

Notes on the assessment of outcomes

5. Return for data literacy: evidence based on current local prices for a 20 hour data literacy training.
6. Return for reduced inefficiency and corruption estimated at the annual cost of corruption in Spain, times the chance of detection (calculated as the chance of an attendee to randomly come across a case, and being able to spot it thanks to the hack training), based on formula: (total yearly cost of inefficiency and corruption / total Spanish population) * n of attendees.

7. Increase in cultural heritage visitors set at 5% of latest available total yearly visit figures (2015), totalling 56000 people.
8. Value of tickets sold estimated at average of cost/admission fee for 3 Santa Coloma area museums (Torre Balldovina, Poblat Ibèric Puig Castellar, Museu de la Immigració).
9. Value of increased local restaurant revenues set at 10€ per meal.
10. Value of increased civility of visitors roughly estimated at 50€ yearly societal savings, by savings in public services expenditures via mechanisms such as reduced vandalism of public sites and infrastructure, increased public safety, and a cleaner urban environment.
11. Value of connections being made based on cost of attending networking events.
12. Value of SME generation for business plans stated at 50k€ in line with EC's SME instrument.

Notes on the determination of scope

13. Notes on deadweight: set at 80% for impacts affecting long-term societal trends, at 50% for smaller participant team impacts.
14. Notes on displacement: set at 50% for hack impacts which could have been achieved with alternative events (training course, networking activity, UX test).
15. Notes on attribution: set at 80% for impacts affecting long-term societal trends, at 50% for smaller participant team impacts and indirect, second-order impacts on visitor numbers.
16. Notes on drop-off: set at 50% for impacts affecting long-term societal trends and open data platform usability.

The full SROI template, in editable OpenDocument spreadsheet format, can be found embedded in Annex 8, and downloaded from the digital version of this document.

6 Conclusions and Outlook

This document has strived to complete the scenario building methodology initiated in the first iteration of the Open4Citizens scenarios report. It has started by updating the initial hypothetical scenarios with a structured description of the actual plans of implementation of Open Data Labs at each of the pilots, reflecting the effort devoted by the pilot teams in the year elapsed between both iterations in turning the possibilities in D4.3 into realities for D4.4. Also, this exercise has been extended by the addition of a Social Return on Investment (SROI) analysis of an archetypical

hackathon process to be located in one of these implemented ODLs, with the goal of making explicit the estimated societal value that will accrue to a range of stakeholders thanks to the deployment of these ODLs.

Gains from Scenario definition and the SROI approach

During the second hackathon cycle in the O4C project (approximately March 2017 to May 2018), the five pilots have used the process of defining the first version of the scenarios deliverable as a basis for refining the visions for their individual Open Data Labs, including thinking about possible owners and resources needed. This process has been well within the skill sets inherent in the pilot teams and within the scope of the project. As identified by Nicholls et al (2012, pp 13) in their Guide to Social Return on Investment, the skills needed to carry out an SROI analysis (including data gathering) include engaging stakeholders, outcomes or measurement evaluation expertise, knowledge of Microsoft Excel and basic accounting skills. The O4C consortium members' focus over the course of the project has been primarily on engaging stakeholders. This has involved establishing a solid basis of relationships with possible ODL owners, partners and other stakeholders on which to base an ODL. The remainder of the skills needed to carry out a forecast SROI analysis in line with that described above can profitably be prioritised in identifying the capacities needed in the Network of Open Data Labs going forward. However, the biggest barrier to carrying out both forecast and evaluative SROI analyses in the ODLs emerging from the O4C pilots is a need to allocate significant amounts of time for this purpose.

In describing possible weaknesses of their emerging Open Data Labs and threats to these, there are two common themes for the pilots. They identify 1) the need to demonstrate the value created by the O4C approach in Open Data Labs, and 2) the desire to gain additional sources of funding. The SROI approach to evaluation across the Network of Open Data Labs would support both value creation and demonstration of impact for funders in particular. In this deliverable, we have demonstrated how an SROI approach can be applied to an Open Data Lab hackathon. This lays a strong foundation for further developing the Open4Citizens evaluation framework (see deliverables D4.1 Evaluation Framework and D4.2 Data Collection and Interpretation) to support SROI-inspired data collection and evaluation. Applied to the Network of Open Data Labs as a whole, the SROI approach could support a stronger focus on value creation for ordinary citizens as a key stakeholder group for the labs. It could also lay the basis for evidence-based policy-making aiming to achieve the O4C project objective of starting a movement around open data for service innovation.

The final stage of the SROI approach is reporting, using and embedding. This deliverable provides a first step in this process. It has laid the basis for identifying how the SROI approach adds value to the emerging Network of Open Data Labs and for individual labs within the network. As the scenarios described in section 4 show, a cross-cutting strength of the Open Data Labs is the embeddedness of

the emerging lab within a network of key stakeholders who can already see the value for them of the O4C approach and of the OpenDataLab. We are increasingly making the value created in this way more explicit, e.g. through the collected outputs of the Open4Citizens hackathons that have been held so far. The improvement and consolidation of the scenarios is a further step towards highlighting the value for the main stakeholders involved in establishing an Open Data Lab and, therefore, for the people they support and work with. This could be students and academics in the case of universities or employees and citizens using services in the case of municipal authorities. Seen as a network, the labs are ultimately creating value for individuals and organisations across all societal sectors.

As highlighted by Nicholls et al. (2012) in reference to the principles of SROI, the practitioner's judgment is required throughout the process of calculating SROI and the seven principles of SROI should underpin these judgments. The principles are 1) Involve stakeholders; 2) Understand what changes, 3) Value the things that matter; 4) Only include what is material; 5) Do not over-claim; 6) Be transparent; and 7) Verify the result. The five pilots teams have trained this capacity to reflect on the principles over the course of the project, and these seven principles align closely with the reflections of the O4C consortium that have gone into producing the scenarios in this deliverable. The first principle, involve stakeholders, especially closely reflects the main aims of the O4C project. The Open Data Lab scenario descriptions have defined the most important stakeholders (ODL owners) to be included going forward in the consolidation of the ODLs. The O4C pilots now have the basis, the scenarios and SROI analysis above, from which to do this in a more focused way that supports evidencing value creation for the stakeholders in question.

Looking forward to a network of sustainable Open Data Labs

We believe that the contents of this document provide strong support for the successful deployment of ODLs in the aforementioned pilot locations and beyond, via the European Network of Open Data Labs (NoODL.eu). D4.4. can contribute to this objective an analysis of the challenges and opportunities to be faced by a range of clearly described ODLs being launched at the five pilot locations, and a thorough, evidence-based assessment of the benefits for the wider community of the Open Data Lab model. The document will also constitute the basis on which to build the sustainability models of the deployed ODLs in the upcoming deliverable D4.10 Open4Citizens business models and sustainability plans (Final). This will provide an even stronger foundation of the successful uptake of the ODL model across the world.

7 Bibliography

- Arvidson M, Lyon F, McKay S, Moro D (2013). Valuing the social? The nature and controversies of measuring social return on investment (SROI) *Voluntary Sector Rev.* 2013; 4:3–18.
- Cooney K (2017). Legitimation dynamics: How SROI could mobilize resources for new constituencies. *Evaluation and Program Planning* 64 (2017) 110-115
- Fujiwara, D. (2015). The Seven Principle Problems of SROI.
- Gargani J (2017). The leap from ROI to SROI: Farther than expected?. *Evaluation and Program Planning* 64 (2017) 116–126
- Krlev G, Münscher R, Mülbert K (2013). Social Return on Investment (SROI): State-of-the-Art and Perspectives: A Meta-Analysis of practice in Social Return on Investment (SROI) studies published 2000–2012.
- Kumar SR (2011). Social return on investment (SROI) analysis: A new tool for strategic decision making, planning, and evaluation for managers, investors, and policy makers in international aid and development. PhD Thesis. Los Angeles: University of California
- Maas K., Liket K. (2011) Social Impact Measurement: Classification of Methods. In: Burritt R., Schaltegger S., Bennett M., Pohjola T., Csutora M. (eds) *Environmental Management Accounting and Supply Chain Management. Eco-Efficiency in Industry and Science*, vol 27. Springer, Dordrecht
- Mertens S, Xhaufclair V, Marée M (2015). Questioning the social return on investment (SROI). *SOCENT Publication* 2015-01
- Millar R, Hall K. Social Return on Investment (SROI) and Performance Measurement (2013). *Public Manag Rev.* 2013; 15:923–41
- Lawlor E, Neitzert E, Nicholls J (2008) *Measuring Value: a Guide to Social Return on Investment (SROI)*. London: New Economics Foundation
- Nicholls J (2017). Social return on investment—Development and convergence. *Evaluation and Program Planning* 64 (2017) 127–135
- Nicholls J, Lawlor E, Neitzert E, Goodspeed T (2012). *A Guide to Social Return on Investment*. 2. London: The Cabinet Office
- Yates BT & Barra M (2017). Social Return On Investment (SROI): Problems, solutions . . . and is SROI a good investment?. *Evaluation and Program Planning* 64 (2017) 136–144
- Zappalà G, Lyons M (2009). Recent approaches to measuring social impact in the Third sector: An overview. *CSI Background Paper No. 6* July 2009

8 Annex. Impact Map File of the SROI Analysis

For transparency and replicability of the analysis, the full editable file of the complete SROI impact map is provided below as an embedded document:



Hoja de cálculo de
OpenDocument