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CAPTOR

Collective Awareness Platform for Tropospheric Ozone Pollution

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List of Abbreviations

AT	Austria
CAP	Collective Awareness Platform
DIY	Do It Yourself
ES	Spain
IP	Individual Property
IT	Italy
NGOs	Non-Governmental Organisations
NO2	Nitrogen Dioxide
O3	Ozone
Q&A	Questions and Answers

Executive Summary

The exploitation and sustainability plan consists of two parts. This is part A which presents a model on the exploitation of knowledge items, products and services. Part B will be delivered at the end of the project period (M36).

It includes an overview of the work packages that contribute to possible exploitation. Also the objectives and target groups are listed and described. The estimation of potential exploitation shows the planned usage of all project related items. It shows, which part can be used for approaching interested groups or when CAPTOR partners are approached.

The sustainability plan mainly consists of the task to explore financing options for future uptake of the CAPTOR idea, as well as the plan to build different scenario in partner countries, how project results can be used.

The business model canvas demonstrates a simple business plan of CAPTOR, it shows the structure of the project and especially how to implement other interested groups, called offspring partners.

1. Introduction

The exploitation and sustainability plan for project results and activities is a crucial part of the project. The aim of the exploitation and sustainability plan is to show ways how to promote the future take-up and exploitation of parts of the CAPTOR project and also support the use of the concept of citizen-based air pollution measuring stations. The sustainability plan is linked to task 7.2 “Experimentation with funding mechanisms“. It will explore the possibilities to fund Captor on the long run and will explore financial sustainability.

2. Linkages to other CAPTOR work packages

The exploitation possibilities will be explored both in terms of individual exploitation by individual people and exploitation according to project results and materials. The projects work package plan also shows that results and deliverables from WP 2, 4, 5 and 6 will be essential for the exploitation and sustainability of the Captor project:

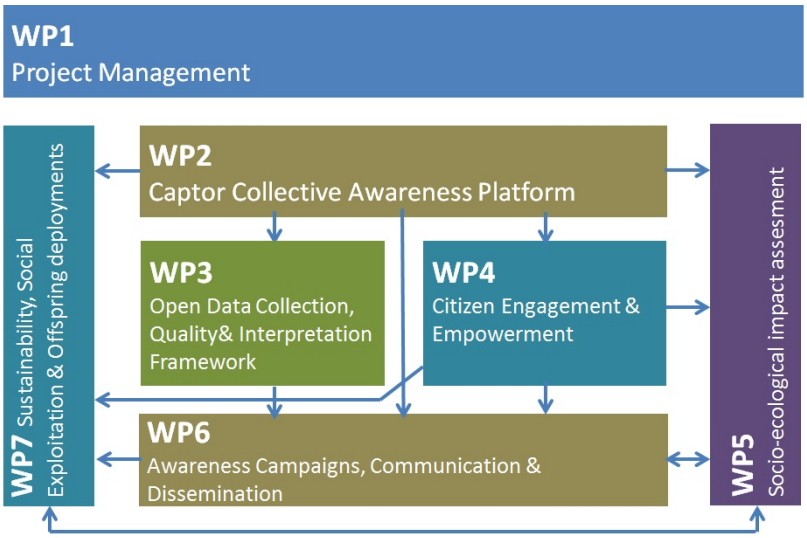

Figure 1: CAPTOR Work packages with interactions

WP 2, the creation of the Collective Awareness Platform as such, will be a best-practice basis for setting up similar projects, where people can get involved by discussing and reading stories on an internet platform. With this tool everyone can read stories written by e.g. Captor volunteers or stakeholders. With Citizen Engagement and Empowerment (WP4), we explore innovative ways to involve people. The results of this work package will show how people can get involved on different engagement levels (makers, hosts, observers and innovators). WP 5, the impact assessment plan will deliver tailed information on assessing various project aspects. The impact indicators can affect offspring project design. Finally, the dissemination and communication materials (from WP 6) will be directly exploited by anyone who will get involved in air quality measurements and citizen engagement in a similar way. E.g. brochures, workshop material and Captor building instructions will provide a basis to start offspring projects.

Volunteers, local communities, civil society organisations, scientific research institutions, technical innovators, air quality monitoring agencies, policy makers, mass media and the general public as potential stakeholders are the main target groups of the project. In this deliverable we are talking about “exploitation”, meaning the following:

- the use of results in further research activities other than those covered by the action concerned
- developing, creating and marketing a product or process,
- creating and providing a service[1]

[1] Description from https://www.iprhelpdesk.eu/Fact-Sheet-Plan-for-the-Exploitation-and-Dissemination-of-Results-H2020)

This exploitation model has been created, by taking the project objectives as a general basis. Through that, the projects mission can be identified. It is building up on the dissemination and outreach plan and using knowledge items, products and from different work packages (WP 2, 4, 5 and 6) which are tailored to meet the projects target groups.

The sustainability plan will include an impact assessment plan for the activities and a model for financial self-sustainability of CAPTOR nodes.

The final version of the exploitation and sustainability plan (D7.1b) will summarise the activities of WP7 and will be linked to the offspring-report. It will include evaluation results of Captor activities, evaluation results and a future scenario on funding for Captor material for financial self-sustainability. Deliverable “Dissemination, communication and outreach plan” (D 6.1) is a basis for the exploitation model.

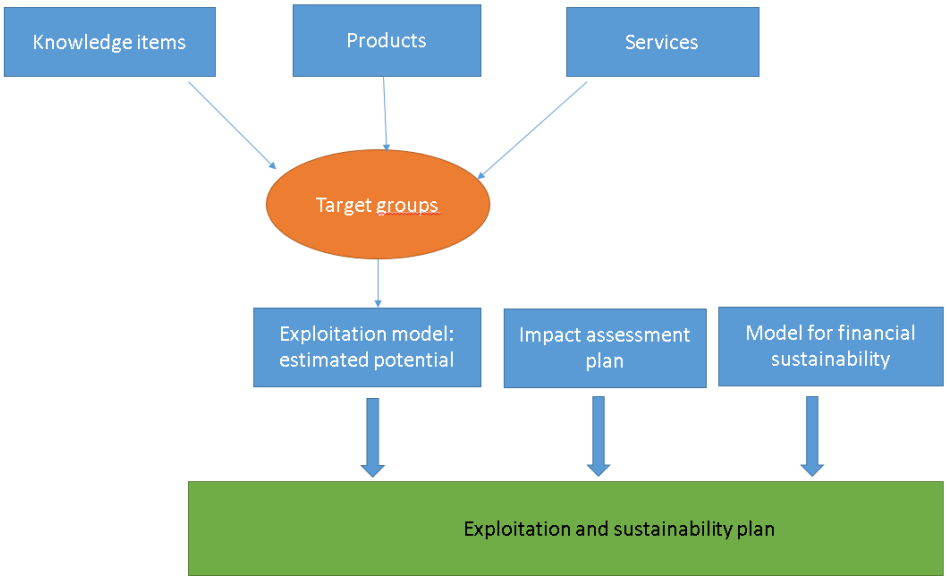

Figure 2: Input for Exploitation and sustainability plan

3. Project objectives

The project mission - in line with the objectives - is to demonstrate the power of Collective Awareness Platforms to foster collaboration of local communities, citizens, NGOs and scientists to raise awareness and find solutions to the air pollution problem.
This part is prepared on the basis of the general description of work package 7 "Sustainability, social exploitation and offspring deployment", described in Annex 1. The exploitation plan contributes to meet the project specific objectives, as follows:

Project objective (OBJ)	Contribution to exploitation plan
OBJ1: To engage local communities in citizen science instantiations for monitoring ozone.	A network of citizens with awareness for air quality will be built. To promote the deployment of new sensor nodes in communities by following the DIY philosophy.
OBJ2: To engage these local communities in a collaborative learning process about air pollution	The Citizen science approach of the project will motivate people to stay informed and learn about air pollution.
OBJ3: To empower citizens and engage them in promoting behavioural changes and active participation in decision making to drive solutions – air pollutant industries, local administrations, scientists, academia and innovators - to promote best practices and advocate plans to control and reduce air pollution.	The project will stimulate discussion of local communities involved in the project with different stakeholders. The project to research into effects of ozone pollution on agriculture, health and biodiversity.
OBJ4: To learn and to assess the effectiveness, replicability and creative power of the approach.	The project will provide evidence of its impact and derive lessons learned for similar initiatives.

On the basis of the project objectives it is highlighted in the table above which action or process contributes to meet the objectives. Another aim of the exploitation model is to provide the various target groups with high-quality information about CAPTOR, ensuring maximum impact of the project during its life-span and sustainable benefits after the project is ended. Therefore, simplicity and consistency are essential to ensure that the target audiences understand and retain the information. A priority contributing to the success of the project was the identification of the correct target groups addressing all the actors involved. This is shown in the projects work package 6 (Awareness Campaigns, Communication and Dissemination).

4. Target groups

The target and stakeholder groups have been identified in the projects communication plan (WP6), as follows:

Target groups: Stakeholder group and relevant institutions
Volunteers that plan, deploy, operate and mantain the network.
Local communities (education community, farmers, health associations, environmental organizations, etc.)
Civil society organisations and NGOs working on issues related to air pollution, renewable energy, climate change, and consumer right
Scientific research institutions, universities, other projects
Technical innovators
Air quality monitoring agencies
Policy makers at local, regional, national, and European level
Mass media

Another way to outline target groups can be done by looking at the level of engagement (makers, hosts, observers and innovators[2]). Each citizen from each target group (as listed above) can get involved on these different levels.

As for project exploitation, we will look at these engagement levels in the coming two project years. We can then list the involvement of target groups by engagement level, according to the experience that project partners made. In the 2nd part of the exploitation and sustainability plan will be a summary of these experiences. This information will be made available to people interested in launching offspring projects or similar project, so they can address the right people with the right communication tools (e. g. App or CAP). E.g. local communities might get more involved as hosts and observers, rather than innovators or makers.

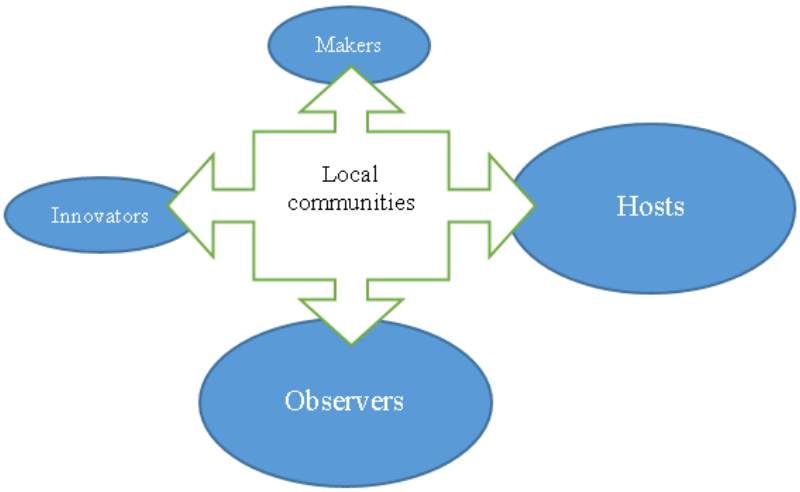

Figure 3: Example for a target group (local community) acting on different engagement levels.

[2]This Definition of engagement levels is described in detail in Annex 1, p. 12.

5. Model for Exploitation of Results

The project results can be seen in the projects deliverable-plan. There we describe the different results that can be used for exploitation and further on for sustainability. The second part of the exploitation and sustainability plan (D7.1b) will assess what has been used so far for a future uptake of CAPTOR project. CAPTOR activities, where stakeholders or interested people can get involved, are taking place during the project period. At each activity or event we will inform people about the various possibilities to join CAPTOR and to exploit the CAPTOR materials in other regions or after the project period.

A simple business plan was created to highlight target groups, services and other items that CAPTOR can offer for exploitation. The business model Canvas, designed by Alexander Osterwalder, is used to visualize the structure. Business model Canvas is a chart with 9 elements describing a product's value proposition, customers' relation, financing structure, key resources and key activities.[3]

[3] Description from https://en.wikipedia.org/wiki/Business_Model_Canvas

5.1 Estimation of exploitation potential – self evaluation[4]

In order to know which results and materials will be useful for exploitation, we estimate the exploitation potential for each result separately. This evaluation was done by CAPTOR project partners, it is a self -evaluating instrument at an early stage of the project.

The estimation of the exploitation potential was done by asking all project partners to give their view and to rate the potential. We categorise the potential generally in **high, medium or low potential**. When appropriate, the potential for different target groups is highlighted separately. We also asked project managers in the field of Citizen Science who are not a part of the CAPTOR project to give their general estimation for exploitable material. Having collected feedback from all these experts, the results are merged in tables 1, 2 and 3, attached at the end of this deliverable. According to the following definition of high, medium or low potential, the experts' estimations were collected:

"High potential":

- The result is a key result, a main result, or a very important part of the project
- The result is useful for several target groups

For example, the CAPTOR nodes are a key result of the whole project. The nodes may be useful for several target groups in order to measure air quality, e.g., technicians, scientist as a tool for low-cost monitoring, local communities to deploy nodes done by themselves, etc. The CAPTOR nodes have a high exploitation potential.

"Medium potential":

- The result might be useful for several target groups.
- The result is useful for one specific target group,

For example, the "Engagement and monitoring plan" is interesting for volunteers, local communities and civil society organisations. Mass media and policy makers might find this deliverable useful to report about the project or to trigger engagement in their region. On the other hand, scientific research institutions, technical innovators or air quality monitoring agencies will probably not be able to use this in further projects.

"Low potential":

- The results can probably not be used for exploiting or sustaining the project.

For example, T-shirts cannot be directly used for other projects or actions, although volunteers who take on the idea and participate in similar projects might wear them.

[4] The revision of deliverable 7.1a showed, that the listing of deliverables, events etc (as shown in table 1-3) is not important. However, the self evaluation has been done according to these listings of deliverables, events, etc. The tables 1-3 are attached at the end oft he deliverable.

The following 3 tables are a collection of deliverables and materials that have been identified as exploitable. They are structured into 3 tables, as they show various “qualities“, e.g. the structure of a deliverable differs from the structure of an event.

5.2 Summary of exploitation potential

Table 1-3 in Annex 1 show the collection of results in detail.
The collection of material with estimated exploitation potential shows that the stakeholder groups are clustered. For example, for the scientific research institutions, technical innovators and air quality monitoring agencies the similar materials will be useful. They will focus more on the technical outcome of the project than on events for citizens. Also volunteers, local communities, civil society organizations can be seen as groups with similar interests. Generally spoken, the deliverables produced over the project period will all be useful for exploitation for all stakeholders afterwards. Events will not always be directly exploitable, although they can be seen as good-practice events.
Tables 1-3 give an overview on the materials which can be used to approach various target groups, and – vice versa – which material can be provided when the CAPTOR project partners are approached on advice to set up similar projects.

5.3 Business Model Canvas

The Business Model Canvas is used to visualise CAPTOR elements for the sustainability of the project (WP 7). If CAPTOR is seen as a business idea, the following elements are identified in the chart (see figure 4). In the box “customer segment” on the right side, one can see the main target groups as potential offspring partners: universities, research organisations, NGOs and communities. These groups have already approached CAPTOR with various ideas of a future uptake. At this stage of the project the ideas have not sharpened yet.

Box “customer relationships” shows the tools we could identify so far as useful tools to support exploitation. Individual support will be offered by the CAPTOR partners, as well as email support, a Q&A list, newsletter inputs, etc.
Box cost structure only shows the posts that are identified for off springs. There are no fix amounts yet, at this stage of WP 7.
Box “value proposition” is the centre point of the business model canvas. It shows the core idea of the project. In this case it shows the values that are interesting for exploitation.

The boxes on the left side of the model (key partners, key activities, key resources) visualize internal parts of the. These items are a part of the project, compared to the boxes on the right side, which focus on external relations.
The financial structure of the project is reflected in the two boxes at the bottom. At current stage a rough overview is given, which kind of costs are identified. In box “revenue streams” the income for a project is visualized. For CAPTOR there will be no income as such. The possibilities of financing can be listed here at a later stage.

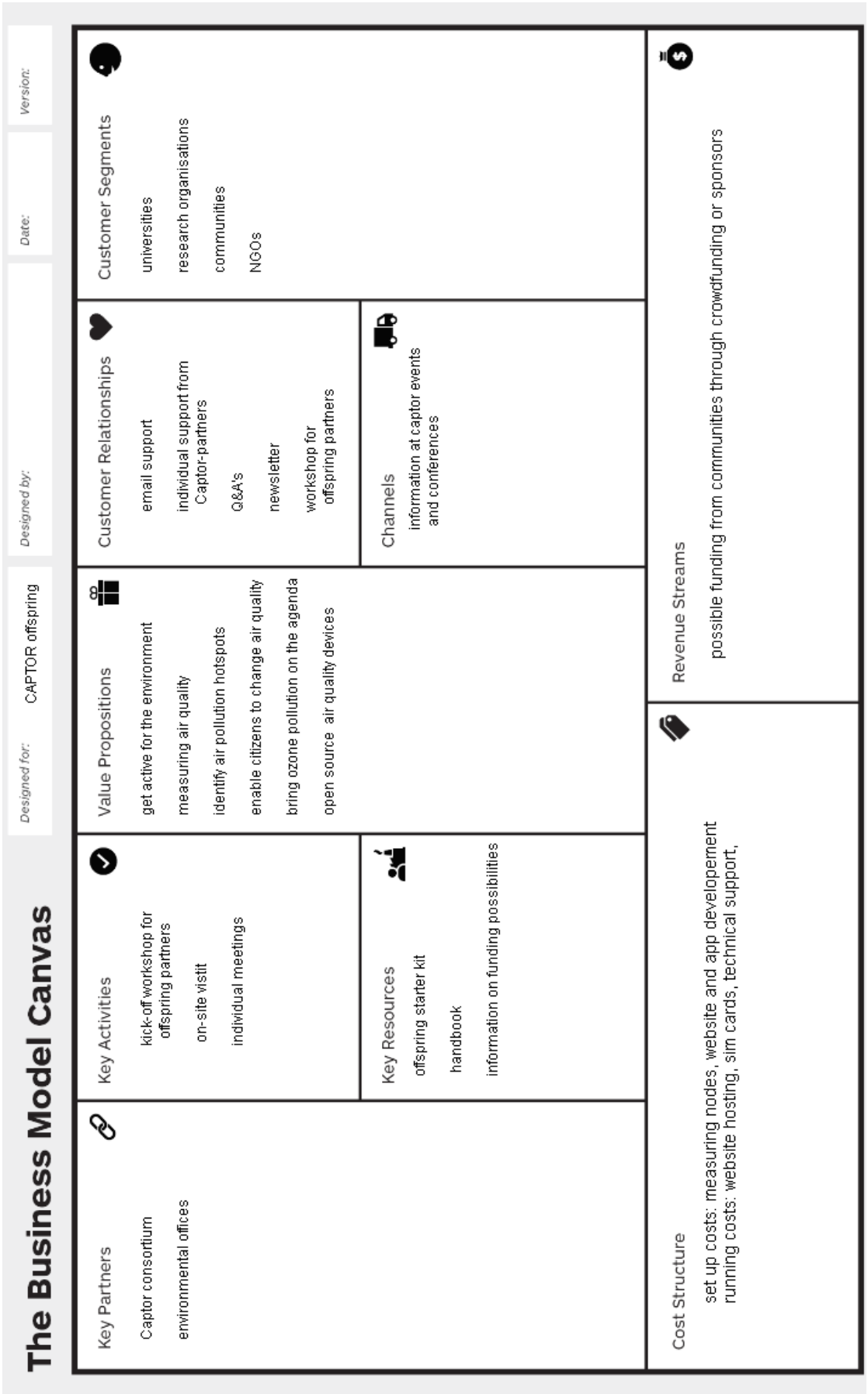

Figure 4: Business Model canvas for the CAPTOR project.

5.4 Geographical coverage

In three European countries there are testbed regions for CAPTOR. A future uptake of the CAPTOR idea will focus on:

- Increasing the number of regions in the testbed countries (Austria, Italy and Spain) since the NGO CAPTOR partners have presence with local communities across these countries.
- Regions in neighbouring countries such as Slovenia, Slovakia, Hungary, Portugal.
- Regions where CAPTOR partners have strong liaisons due to research or activities.

Five institutions/regions have already shown interest in launching an offspring project:

- Laboratory of Ecology and Environmental Science, university of Athens, Greece
- Levegö Munkacoport (Clean Air Action Group), Hungary
- Murcia, Spain
- Unió de Pagesos, Baix Ebre, Catalonia, Spain
- Friends of the Earth, Malta

5.5 Individual exploitation possibilities

The following table lists the exploitation opportunities that have been identified so far:

Opportunity	**Explanation**
Supporting the creation of offspring projects in other regions	CAPTOR will launch a number of offspring projects that will leverage from the methodology developed. Crowdfunding schemes will be explored to sustain these offspring projects.
Spin-off of organisations by students from UBP LIMOS for the sensors	UBP-LIMOS identifies the opportunity of exploiting some of the knowledge acquired during the project execution to create a spinoff on sensor design.
Spin-off from UPC on estimation tool	UPC identifies the opportunity of exploiting the knowledge acquired during the project to create a spin-off that will offer estimation for gas concentration in low-cost sensors.
Systematization report about the methodology and deployment of open monitoring and learning platform.	The methodology gained by CAPTOR and its impact on social, environmental, political, economic and political level will be reported. The findings will be of utility for other similar experiences in other regions or other sustainable areas.
Protocol on pollution episodes elaborated by engaged communities and organizations.	The project will develop a protocol on pollution episodes elaborated by the potentially affected communities. This protocol will be made available to municipalities, political parties, and related organizations.
Behaviour changes and policies good practices catalogue	The catalogue on behaviour changes and policies good practices will be offered to public institutions, companies, political parties, etc.

In the final exploitation and sustainability report (D7.1b) we will show, which individual opportunities were taken and which other opportunities were identified and useful for future uptake of the Captor idea.

6. Sustainability plan

The sustainability plan is linked to task 7.2 "Experimentation with funding mechanisms" which will explore the possibilities to fund CAPTOR on the long run and will aim at financial sustainability. This first sustainability plan is an outline on the tools that will be used to sustain the project idea on the long run: the impact assessment (6.1) and the model for financial sustainability (6.2).

As there are numerous workshops and events planned within the project, we will have a network of stakeholders set up by the end of the project period. The 2nd part of D7.1 will show which target groups could be motivated and in which way they will carry on with the Captor idea.

6.1 Impact assessment

The impact assessment plan is a part of work package 5. It lists the expected impacts tailored to target stakeholders and delivers indicators, as well. The report (at mid time and at the end of project period) describes the evaluation and impact assessment framework as well as the foreseen methods to assess the various project aspects. It will also include a set of potential impact indicators and report on first formative evaluation results.

The expected impacts (EI) are analysed on various levels: the innovation, the scientific, the social innovation, education level.

6.2 Model for financial sustainability

Funding mechanisms, especially web based alternative funding mechanisms including crowdfunding, are needed in order to sustain the networks established during the project.

Crowdfunding is used by project developers as an instrument to bring the idea and content of a project closer to people that will be involved.

In the 2nd and 3rd project year of CAPTOR we will hold "scenario building workshops" in each partner country. There we will elaborate in which way a future project inspired by CAPTOR can possibly look like, how it can be financed or what research is still needed to measure data. For 2017 the focus lies on project internal participants, including test bed partners and volunteers. The creation of a workshop model including tools, best practice examples, risk and obstacles assessments and stakeholder contacts will be the outcome of this event. 2018 the workshops will be held for external people as well. Partners from test beds, local communities, project developers, education experts and potential offspring partners will explore and experiment with alternative ways of sustaining the CAPTOR idea.

Project year	Scenario Building workshop	Target group	Outcome-internal	Outcome-external
2017	1-3 workshops in partner countries (if applicable)	Project partner organisations, test bed partners, volunteers	Scenario building workshop Report (end 2017)	A workshop model for 2018
2018	1 workshop per partner countries (ES, AT, IT)	test bed partners, local communities, project developers, education experts, potential offspring partners	Scenario building workshop Report (end 2018)	Initiation for 3-4 offspring projects

7. Legacy and IP rights

The environmental data obtained by the project may be openly accessed by researchers or organizations, either for research or for producing new tools or services. Captor will follow an open access publication strategy. The data management plan of CAPTOR (deliverable 1.2) describes the handling of CAPTOR data during and after the project. General outlines on the ownership of results and access rights are part of the consortium agreement, as well.

However, as CAPTOR is producing innovative tools and devices about air quality data, citizen science involvement, IP rights and open access strategy will have to be discussed in detail during the project-period. There are different ways of executing an open access approach. It can be seen in a narrow sense, where research results are made available to the public. A broader approach of open access executed in “open science”, “open innovation” or “open data”. At the next general assembly the consortium will discuss the open access strategy and the handling of IPR regarding exploitation of CAPTOR data, knowledge items and products. The next general meeting is scheduled for autumn 2017.

Annex 1

Table 1-3 shows a listing of all captor items and the evaluation of the potential for exploitation, produced at an early stage of the project.

Table 1: List of project result(s)

Title of Project Result(s)/Deliverable	Description of Project Result(s)	Estimated exploitation potential
D2.2 Requirement for CAPTOR platform	Description of the DIY process for developing a CAPTOR/RAPTOR node	High (for Scientific research institutions, technical innovators, air quality monitoring agencies, volunteers, local communities, civil society organizations) Low (for mass media, policy makers)
D2.3 Release of estimation software	Software tool for ozone concentration software for metal-oxide sensing device	High (for technical innovators and scientific research institutions) Medium (for air quality monitoring agencies) Low (for mass media, local communities, policy makers)
D2.4 Release of open data repository	Web Platform where the scientific community may access the low-cost sensor data, already calibrated.	High (for scientific research institutions and technical innovators) Low (for policy makers, mass media, volunteers, civil society organisations, local communities)
D2.5 Release of *CleanAir* mobile app	Application whose aim is that any citizen may visualize the data taken by low-cost sensors and reference stations in a geographic area in real-time. Moreover, the application allows to interact with other users via social networks.	High (for volunteers, local communities) Medium (for civil society organisations, mass media) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
D2.6 Release of collaborative learning platform	Platform whose aim is allowing users share their own experiences and interact with other members of the community, achieving a collaborative learning.	High (for volunteers, students, civil society organizations, local communities) Medium (for mass media, policy makers) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
D2.7 Release of website	General project information with links to the app and to the learning platform	High (for volunteers, local communities, civil society organisations)

		Medium (for mass media, policy makers) Low (for scientific research institutions, technical innovators, Air quality monitoring agencies)
D3.1 Report on requirements and procedures for air pollution citizen science campaigns	Methods for calibrating the data and produce then data with a given quality.	Medium (for scientific research institutions and technical innovators) Low (for all others)
D4.1 Engagement and monitoring plan	A plan to coordinate the involvment of participants	High (for volunteers, local communities, civil society organisations) Medium (for mass media, policy makers) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
D4.2 Engagement and empowerment report for citizen science	Periodical reports for monitoring citizen schience aspects	
D4.3 Engagement and empowerment report for collaborative learning	Periodical reports for monitoring collaborative learning aspects	High (for volunteers, local communities, civil society organisations Medium (for mass media, policy makers) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
D5.1 Impact Assessment Plan	A description of impact assessment framword with a map of potential impact indicators	High (for scientific community and citizen science community and specific stakeholders such as science communicators, mediators, policy makers) Medium (for civil society organisations, volunteers, local community)
D5.2 Interim impact assessment report	An interim report linked to the impact assessement plan	
D5.3 Final Impact assessment report	A summary of evaluation results	
D6.1 Dissemination, communication and outreach plan	Detailed strategy on impact of communication and dissemination, adapted to target groups	High (for civil society organisations) Medium (for mass media, policy makers, volunteers, local communities) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
D6.2 Dissemination material	A list of dissemination material can be found in D.6.1 and in table 3	See table “Dissemination material collection”
D6.3 Dissemination, communication and outreach	Report including a best practice catalogue	High (for volunteers, local communities, civil society

report		organisations
D.7.2 Scenario building Workshop report	Report including a stakeholder list for further engagement	Medium (for mass media, policy makers) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
D.7.4 Offspring report	Report on offspring development and future evolution	High (for local communities, civil society organisations Policy makers, volunteers) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)

Table2: Activities/Event Collection

Title of Event/Activity	**Description**	**Estimated exploitation potential**
Criticona: cycling event in Barcelona	Event in Barcelona, May 2016	High (for local communities, civil society organisations, volunteers) Medium (for policy makers, mass media)
Call to enrol test bed volunteers	Event in Barcelona, June 2016	
CAPTOR presentation for environmental students	Event in Vienna, Nov 2016	
Volunteer search at Christmas market	Event in Vienna, Nov 2016	
Presentation of the CAPTOR project and the campaign	Osana, Catalonia, July 2016	
Regional presentation of the project to involve Legambiente local group	3 events across Italy,	High (for local communities, civil society organisations) Medium (for policy makers, mass media) Low (for scientific research institutions, technical innovators)
Captor Building workshops	planned	High (for local communities, civil society organisations, volunteers technical innovators)
Engagement workshops	planned	High (for local communities, civil society organisations, volunteers, mass media) Medium (for policy makers) Low (for scientific research institutions, technical innovators, air quality monitoring agencies)
Scenario building workshops (for exploitation)	planned	
Community events	planned	

Table 3: CAPTOR materials

Instrument	**Description**	**Estimated exploitation**

		potential
Captor Website	General Website for the Project	High for all stakeholders
AirAct (mobile app)	Application with the aim that any citizen may visualize the data taken by low-cost sensors and reference stations in a geographic area in real-time. Moreover, the application allows to interact with other users via social networks.	High (for volunteers, students, civil society organisations, local communities) Medium (for mass media, policy makers) Low (for Scientific research institutions, technical innovators, air quality monitoring agencies)
Collective Awareness Platform (CAP)	Plattform for discussions and user stories	
Printed materials	Brochures and Flyers for various events	High (for local communities, volunteers, civil society organisations) Medium (for mass media)
T-Shirts	Shirts with printed CAPTOR logo	High (for volunteers) Low for all others
Captor nodes	Description of the DIY process for developing a CAPTOR node (metal-oxide sensors).	High (for scientific research institutions, technical innovators, air quality monitoring agencies, volunteers, local communities, civil society organizations,) Low (for mass media, policy makers)
Raptor nodes	Description of the DIY process for developing a RAPTOR node (electrochemical sensors).	