Exploitation Strategy

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Short Description	*This strategy aims to explore the potential for further development and implementation of the project deliverables by identifying the ones that can be utilised in generalising legislative efforts in national or regional scale as well as identifying targeted markets and tasks that could be carried out with citizens and innovative Living Labs The strategy will be updated twice in month 18 and 36 to integrate project outcomes.*		
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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This deliverable contains original unpublished work except where clearly indicated otherwise.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.

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List of abbreviations

AQ   Air Quality.

DoW   Description of work.

ENoLL   European Network of Living Labs.

EC   European Commission.

ESIC   Exploitation Strategy and Innovation Consultant.

EU   European Union.

FCC   Future Cities Catapult.

FMI   Finnish Meteorological Institute.

GEOSS   Global Earth Observation System of Systems

IAAC   Institute for Advanced Architecture of Catalonia.

IIASA   International Institute for Applied Systems Analysis

IPR   Intellectual Property Rights.

JRC   Joint Research Centre.

OECD   Organisation for European Economic Co-operation.

RAINS   Regional Air Pollution INformation and Simulation.

RTO   Real Time Operating Systems.

SME   Small and Medium Enterprise.

SWFM-QF   Stakeholder Working Group for Facilitating Manufacturing of deliverables with Quantifiable Finances and results.

SWFM-TI   Stakeholder Working Group for Facilitating Manufacturing of deliverables for Technological Innovations with immediate returns.

SWOT   Strengths Weaknesses Opportunities and Threats.

T6   T6 Ecosystems.

TCD   Trinity College Dublin.

TUDO   Technische Universität Dortmund.

UCD   University College Dublin.

UNIBO   Alma Mater Studiorum - Università di Bologna

UH   Hasselt University.

WP   Working Package.

1 Executive Summary

A wide range of exploitation actions are scheduled within this project in order to capitalize the knowledge developed and for the advancements of technology utilised as well as for bringing the value generated to both open market (from the business perspective) and society (from the societal perspective). In particular, this project will exploit a set of control interventions (passive control systems) linking air-quality and climate change in urban areas. It will promote improvements attributed to behavioural aspects of urban dwellers by applying real-world physical interventions on the urban tissue to alter ventilation rates and dispersion patterns in the selected cities. It will also evaluate through analysis and a suite of up-to-date numerical modelling the benefits expected from the interventions on a neighbourhood scale for several aspects including the photocatalytic coatings, changing the mobility behaviour of people by studying processes and dynamics that lead to more resilient, healthy, and sustainable cities.

The aim of the exploitation campaign is first to generalise the relevant deliverables, to liaise the lessons learned with regulatory consequences regarding exposure of population to atmospheric pollution as well as to promote specific deliverables with commercial value in the international industry and furnish expert advice in developing countries. These will be in particular targeted at sites where iSCAPE could influence large climate gains from air pollution mitigation.

The exploitation is based on an innovative scheme that will be reviewed in three versions during the project. In these reviews, the SWOT analysis will be updated together with the Stakeholder Working Groups for potential use of the project results. The reviews will also identify new associations with other projects having similar aims and learn from the momentum of other projects that have ended but furnished similar deliverables with relevance to this project. Hence, with this campaign iSCAPE is planning to become a unique flagship adding significant value of European capital worldwide and in promoting European development through concrete technological achievements.

2 Introduction to the aims of project exploitation

One of the main aims of iSCAPE is to translate local experiences in general and shared knowledge for improving the air quality in cities in climate change scenarios. New solutions identified within the project will show main benefits for the sectors of air pollution control, climate change as well as smart cities as a whole in Europe. Indeed, technological outputs of the project more than benefits for the single technological partners within the project will constitute a positive externality for all Europe. Such outputs are the set of control interventions (passive control systems) linking air-quality and climate change in urban areas. It will also aim to promote the improvements attributed to behavioural aspects of urban dwellers while at the same time considering these dwellers as active contributors and hopefully project owners rather than passive information providers/listeners. These will allow the proliferation of real-world physical interventions in the urban domain and the studying of the dynamics that lead to more resilient, healthy, and sustainable cities. In order to reach this aim and for successfully transferring the

project's results, a wide exploitation campaign in Europe and elsewhere is planned during this project This is achievable because of the long scientific and technical expertise of participants and on tangible research results that are available from the early stage of iSCAPE.

First, relevant research deliverables will be generalised in order to link the lessons learnt and research outputs with regulatory consequences regarding population exposure as well as human health. Moreover, specific deliverables with commercial value in the international industry will be generalised and furnish expert advice in developing countries in sites where iSCAPE will influence large climate gains from air pollution mitigation. We also aim with broad campaigns to transform iSCAPE in a unique flagship for the sector promoting European development through concrete technological achievements.

Exploitation of iSCAPE results and developments will be an ongoing activity through the project. The project consortium will establish iSCAPE as a highly visible focal point for research on air pollution in Europe and internationally according to the aims of the call (SC5-04-2015).

The challenges of this call are to find long-term, sustainable solutions in the EU addressing atmospheric pollution in cities where citizens are frequently exposed to high levels of pollutants exceeding the limit values established by the European directives. It also requests the development of technological options and strategies to fight against air pollution in urban environments and against climate change ensuring the involvement of the main pollution-generation sectors. It also request the development and application of tools in support of integrated air quality and climate change governance in EU Member States, with the aim of designing and implementing adequate abatement strategies and practices.

The iSCAPE project will produce cutting-edge research and scientific and social results will be spread as widely as possible, and will be publicised via the consortium's national and international networks.

Particularly, the objective of exploitation is to develop an effective way to exploit the project results within and if possible beyond the life of the project. iSCAPE will create an exploitation plan as part of WP7, defining a strategy to explore potential further development and implementation of the project findings. The strategy will target the following objectives:

1. To define a pragmatic procedure to translate the findings into policy actions in order to maximise the impact.
2. To define a framework to exploit the lesson learnt from the innovative use of Passive Control Systems in urban environments in order to deploy similar interventions in other cities in the EU and worldwide to have a positive impact on air quality in cities on a larger scale.
3. To define a framework to exploit the lesson learnt from the innovative use of Living Labs in the field of air quality in order to further exploit the gathered knowledge as part of future EC projects and export the learnt lesson to potential end-users or other beneficiaries.
4. To define business scenarios considering specificities of each SME of the consortium in terms of commercial positioning and products/services already offered, as well as a suitable value chain for the implementation of applications. These should include an identification of barriers/risks to market deployment and how these could be addressed, showing how

potentially this will benefit the market uptake of the innovative solutions but also benefit the sector as a whole in Europe.

5. To define a legal framework for exploitation by identifying the items that could be exploitable by each partner according to the Consortium Agreement including IPR details and by taking into account the contribution among all partners in each exploitable result.

6. To identify developing areas where the project outcomes will maximise the outcome of interventions and provide expertise in areas with significant impact. This is the reason why in the consortium are involved international Institutions and local authorities giving benefits that can go beyond written reports and offer a coherence for a potential continuation after the end of the project.

The **academic partners** will have a special role in distributing the results of iSCAPE in order to apply the lesson learnt in terms of interventions to improve air quality in urban environments to other cities in EU and worldwide (e.g., generalisation of the results). ENoLL with contributions from FCCs work in WP2 will ensure that the designed framework for **Living Labs** for air quality interventions will be available to the Living Lab community at large. JRC will ensure that the findings will be effectively translated into **policy recommendations** for further exploitation in the clean air-quality directives as well as for the regulatory actions for climate mitigation and monitoring. The SMEs and RTOs will facilitate the dissemination of commercial findings related to sensing units and photocatalytic coatings in order to benefit the EC industrial community at large and in general promote technological and non-technological solutions from the project.

The current document has been concluded after a several discussion between the partners since the project kick-off meeting in Dublin in September 2016 and after addressing several issues related with project results and deliverables. It serves as an outline of the exploitation strategy and highlights opportunities and possibilities that will be updated along the duration of the project, as more deliverables will become available. The iSCAPE exploitation strategy focuses on the following specific actions that are described in detail in the following sections:

- To promote and raise awareness about the project's contents, developments and results in association with the communication and dissemination strategy (deliverable D8.1);
- To look for cooperation with decision-making bodies and organizations identifying specific channels for dissemination and exploitation;
- To harmonize the exploitation activities of the partners for a more efficient and effective communication;
- To plan exploitation events together with other relevant initiatives during which it will be also examined the possibility to continue after the project lifetime if the last event succeeds to be self-financing. In terms of Living Labs this will depend on the community engagement and how the citizens involved will take ownership of the project aims.
- To get people involved and continue their involvement by creating value from the citizens' point of view, so that the input provide from their engagements is directly reflected back to them as a tangible benefit (see more as per deliverable D2.1).

3 The first iteration of Exploitation Strategy

Within the iSCAPE DoW the exploitation strategy was proposed to be a continuous innovative approach with two unique features. First, the consortium has agreed to implement a complete Work Package (WP) that has ten specific deliverables while at the same time it has proposed to work in harmony and close collaboration with the dissemination and communication package (WP8). The second feature was to propose an exploitation process that will be revised and updated three times during the project execution. Namely, the three versions of the strategy will be communicated on months 6, 18 and 36.

The purpose of the first version is to establish the templates of the information that will be needed for exploitation, to initiate the establishment of the stakeholders and the potential end-product target working groups. It will also establish the criteria and the templates of the information and the logbooks that will be maintained by all partners during the execution phase. The second version of the strategy will present detailed information about the exploitation that will be followed by each partner in association with the detailed outline of strengths, weaknesses, opportunities and threats for each of the exploitation deliverables that will be released in the second half of the project. In the final version of the exploitation strategy, will be released the final data from the exploitation classified in research, regulatory and citizen Living Lab areas. Because of the sensitivity of these two versions of the strategy we will not plan to release the versions as public documents.

3.1 The compliance to H2020 requirements

Often the terms dissemination and exploitation are used in referring to the same actions. Often projects consider and use the two terms interchangeably, but their definitions are not identical, with clear distinctions that require specific attention. Especially in Horizon 2020 projects these are considered to be of great importance and highly valued.

In order to be successful with your H2020 project, dissemination and exploitation should be effectively tackled in our H2020 proposal (EC Decision C8265, 2016). In particularly, we have the obligation to disseminate the deliverables of the project as well as further exploiting the project results. The expectations from both terms are analysed in this section.

Dissemination

The definition of dissemination is "the act of spreading something, especially information, as far as possible" (EC decision C8265, 2016 and H2020 Communication, 2014). In this case, it is the transfer of the project research and results to the ones that can best make use of it.

There are three aims of dissemination: a) create awareness, b) create understanding and c) list aims for action for successful dissemination of project results (EC decision C8265, 2016 and H2020 Communication, 2014). A project usually benefits from a good dissemination strategy, because it will maximise the impact of projects. Therefore, a specific communication and dissemination strategy was developed as part of WP8 (D8.1) where iSCAPE dissemination objectives, target audiences, the project identity and brand as well as communication and dissemination channels are described.

Exploitation

Exploitation is the action of making use of and benefiting from resources. This term is related to the development or commercialisation of a product or a service. For a research project it is, so to say, the next step in your route-to-market to ensure that your results will be used beyond the lifetime of the project (EC decision C8265, 2016 and E. Sweeney, 2015). Not all H2020 projects might need an extensive exploitation strategy. For example, it might not be relevant for fundamental research projects.

However, we should keep in mind, though, that during the Horizon 2020 framework programme the exploitation is more a focusing on the impacts on the society.

For these reasons, exploitation of iSCAPE results and developments are considered to be an ongoing activity throughout the project. The project consortium also aims to identify exploitation benefits for each individual partner as it is explained in section 3.3 with the aim for each partner to become a highly visible focal point for air pollution and climate change mitigation in Europe and internationally.

The following are guidelines that are going to be followed for the successful project exploitation:

- Start early in your project with developing a dissemination strategy. This is ensured by the communication and dissemination strategy developed as part of WP8 (Deliverable 8.1). The dissemination results is planned in such a way that it will opens exploitation channels.
- Quantify what the project wants to achieve by listing the SWOTs related to their project based on the opinion from all partners. In general, it is necessary to set some finite indicators that are common and makes the project plan more quantifiable (see Table 3 and section 3.2).
- Identify the exploitation potential of each individual partner (by harmonising the information from Table 4).
- Quantify for the common deliverables of this working package the SWOTs and if necessary promote this deliverable to the appropriate dissemination channel.
- For a partnership to have a successful exploitation commitment, it is also essential to keep in mind and respect the Intellectual property rights. In iSCAPE is planned an analysis on the Intellectual properties on the deliverables and this will be incorporated in the second version of the exploitation that will be produced in month 18.
- In some H2020 calls, the EU facilitates exploitation by an 'exploitation strategy and innovation consultant (ESIC)'. We will appoint two such consultants. One from the project SMEs and one from the project external advisory board. More information about this can be acquired in the second and third version of this report.
- Exploitation activities will be continued also after the end of the project, if possible. We will examine during the project on how to automate this process and continue the exploitation (and outstanding dissemination) of project results as this will maximise the impact of the iSCAPE project results.

3.1.1 Knowing the exploitation targets

Many of the more highly industrialized parts of Europe are marked by large, sprawling metropolitan areas with a population of more than one million, which increasingly require integrated management of their environment and transport policies (Eurostat, 2015).

National and regional investment plans for technical and non-technical abatement strategies are based on compliance with EU directives as well as with existing WHO recommendations on this subject. . However, it is the cities and the urban areas that are called to demonstrate compliance to the very low standards proposed by the WHO in relation to this matter (Skouloudis and Rickerby 2016).

The products of iSCAPE aim to furnish tools suitable to local authorities for understanding the implication of climate as urban background to their cities and new set of passive controls with innovative monitoring in curbing the anthropogenic emissions with indirect interventions. As such, our targets are local authorities, citizen groups with specific occupational hazards and Living Labs for advancing, public attitudes and government policy within different European countries. For example, our exploitation targets are all groups interested to evaluate the importance of preventive measures to step up action to reduce air pollution focusing on three priority areas:

- The need to increase knowledge of pollutant emissions and air quality,
- To improve local abatement strategies or legislative measures and
- To increase knowledge of the effects of air pollution on the environment and human health.

For the effective exploitation of iSCAPE the following main target groups and key actors have been identified as potential end-users to adopt or apply the results of the project, and potentially benefit from the knowledge produced. At a first glance, these might appear similar to the groups of experts on which the consortium will communicate the results. However, for exploitation we seek commercially exploiting the successful technological innovations from this project, to create self-sustainable Living Labs, as well as offering the iSCAPE solutions in assisting Regulatory decisions:

1. Air-quality and climate change communities in the research sectors and health care (academic and private researchers, public research bodies);
2. Atmospheric pollution monitoring Industry and SMEs;
3. Companies active in the AQ sector for hardware or software solutions;
4. Public sector players (such as public administration organizations, municipal authorities (e.g. urban planners), police departments, universities, etc.);
5. Other EU funded projects and initiatives;
6. Living Labs and other citizen Working Groups;
7. National and local Policy and decision makers (including the EC) at the EU and worldwide;
8. Other stakeholder's active in the different layers of World Bank, OECD and GEOSS;
9. Standardization organisation, trust & security experts working with occupational hazards.

In order to ensure a successful and sustainable exploitation of the iSCAPE results, the exploitation plan will be implemented at three strategic levels, namely the National and International level, with a primary focus on the EU, and in Developing Regions worldwide where maximisation of intervention will produce tangible results in short but representative deployment periods.

In establishing the exploitation targets, the project partners will use the following final tips for establishing additional multiplier channels to raise the visibility of iSCAPE. These efforts will be based on core communication tools distinguishing between push and pull information:

- **Pull content**: Content that can be accessed and consumed by the users (all target groups). Amongst them will be the web (the project website and the Virtual Living Lab) and social media explaining concepts, developments, myths and realities in easy to understand language for the public at large. Furthermore, for the aforementioned nine categories of community, findings from the project itself, but also from other related partners/projects.
- **Push content**: New dynamic channels offered by Web platforms to disseminate messages (e.g. Twitter, dedicated social groups) on academic professional sites (like LinkedIn, ResearchGate etc.).

The dissemination material will be produced in English. This issue is addressed in detail at the Dissemination and Communication strategy at deliverable D8.1. Specific solutions for exploitation might be envisaged for reinforcing the penetration in developing countries, but this will be done in order to address ad-hoc requests.

3.1.2 Setting the objectives and the measuring indicators

In order to quantify the success and the effectiveness of exploitation, several impact factors will be monitored in different scientific and public communication channels. Some of the data will be extracted from the dissemination and communication actions planned in WP8.

In order to facilitate this process, several individual indicators will be monitored during the project from the simple monitoring of visits to the project web site, the hetero-citations of scientific literature published and the close monitoring of the increase of the SWFM-QF and SWFM-TI after each main dissemination and communication event described in D8.1. The detailed evolution of these indicators will be presented in the second and third version of this report.

3.2 The exploitation objectives for all partners

The iSCAPE consortium has already engaged in a number of exploitation activities, the vast majority of which aimed at promoting the project objectives by means of presentations at related events, and publications to pertinent scientific journals, as well as on-line and paper magazines. The key objectives that should be followed by all partners are:

- Establish and maintain mechanisms for effective exploitation.
- Inform stakeholders, targeted user communities for the working groups SWFM-QF and SWFM-TI where a two-way interaction will take place (although these databases might have

some names in common with stakeholder groups established for communication purposes in WP8) of the project development and encourage interactions/ networking.

- Coordinate all levels and types of exploitation of the knowledge produced by the project.
- Ensure that information is shared with appropriate audiences on a timely basis and by the most effective means.
- Channel the project's results to a truly wide international audience in particular to areas where the proposed solutions will lead to immediate society impacts (in developing counties or in EU cities with similar climate and atmospheric pollution conditions).

Within iSCAPE these objectives should be addressed in the ten exploitation deliverables that are part of WP7 and are summarised in the following table. This is a truly unique feature of the exploitation strategy in this project and it involves all partners. Hence, it is expected to have a significant exploitation impact. However, these deliverables are due in month 36, but because of their importance the planning of this work will start in the period between month 6 and 18.

Deliverable	Description of the contents
D7.2	Generalisation summary of infrastructural recommendations for urban policy makers. This report will present final recommendations on infrastructural interventions after taking feedback from partners, stakeholders, urban planners, regulator and industrial needs.
D7.3	Input-output link with an atmospheric dispersion model (outdoor concentrations). This will be in the form of a framework linking anthropogenic urban activities to environmental models for providing new insights on how traffic policy measures need to be designed to improve environmental quality.
D7.4	Personal exposure estimate improvement. This will be in the form of a report describing the framework linking emission models to estimate traffic related emissions, dispersion models to estimate concentrations at which people are exposed and exposure and health impact models to estimate the environmental impacts on public health.
D7.5	Translating environmental effects into human health. This will be in the form of a framework to calculate the health impact on the population based on the impact of road traffic on the environment and taking into account the detailed travel information.
D7.6	Identification of episodes liaising air-quality with climate change. This will be in the form of a report detailing a series of modules of generalisation for identification of episodes linking air-quality and climate change.
D7.7	Geographical harmonisation and generalisation of the iSCAPE operational domains. This will be in the form of a report defining a framework for a geographical harmonisation and generalisation of the conclusions from the

	domains of iSCAPE.
D7.8	Sensor monitoring experiences and technological innovations. This will be in the form of guidelines on sensor utilisation for outdoor and indoor monitoring of pollution.
D7.9	Experiences from photocatalytic films in urban domains. This will be in the form of a report on the use of photocatalytic coatings on residential and commercial building facades in urban environments for different climatic conditions.
D7.10	Potentials and prospects with technological integration with other EU funded platforms. This report will outline synergies with other EU funded platforms in order to maximise the exploitation of the iSCAPE's technological outcomes.
D7.11	Living Labs for Air quality knowledge and policy package. This deliverable 1) creates a compilation of the curated knowledge related to Living Labs in the form of publications/guidebooks and policy papers, and 2) reports on activities performed to transfer this knowledge (webinars, workshops, etc.), participating in World Bank relevant events (in WP8) see Eskelinen et al, 2015.

Table 1; Description of common deliverables of WP7 for the exploitation of iSCAPE

In promoting these deliverables with local authorities (municipality or regional scale), the recommended features of the project that have ***added value*** for exploitation are as follows:

- Show the results of the project to other public administrations and regulatory authorities (especially by exploiting the links established from the Living Labs).
- Learn about the features needed to extend iSCAPE to smaller scales (e.g. as in street canyons or at zones where passive control interventions are implemented).
- Devise a methodology for extending the approach to other countries (EU and worldwide if possible)
- Integration of the same policy area over different levels and for the geographic generalisation of the results to be applicable to other areas.
- Extension to other policy domains (directives for health or industrial emissions).
- Establish a list of potential end-users from all aforementioned steps (from month 18 onwards).

The common exploitation deliverables for iSCAPE should also apportion the exploitable knowledge, identify the generated products or services and determine the most suitable areas of application. Table 2Table 2 shows the first version of early knowledge and products that are worth to be exploited according to the DoW of the project. In the second and third version of this report, this table will have an additional column identifying the tool or the working group that will be used for achieving this exploitation. The rows of this table have been based on the objectives of the iSCAPE project, i.e.:

1. Develop new sustainable and passive air pollution control strategies (PCS) based on scientific and social criteria which take into account the physical and architectonic characteristics of a city, its network of streets, population distribution and traffic conditions. The interventions to be examined will include PCSs such as low boundary walls, trees and hedge-rows, green walls and roofs, photocatalytic coatings, green urban spaces and road geometry.

2. Assess existing and proposed air pollution control technology and policy interventions for major air pollution sources in European cities. The impact and effectiveness of emission abatement and policy intervention measures under business as usual and potential alternative future scenarios will be assessed on emissions, overall air quality, and the human health benefits and health care costs.

3. Rapidly deploy innovative technological solutions. (i) with semiconductor sensing platforms with open source software for managing huge volumes of data, after verification campaigns for "in-situ" calibrations. (ii) Use of photocatalytic coatings deployed in a controlled public site and in real atmospheric conditions to assess its efficacy in improving air quality in local "hot-spots".

4. Customise an advanced integrated air-quality modelling tool for the assessment of air pollution and associated control strategies. By utilising smart cities monitoring technology and data, the modelling tool analysing the indirect air pollution effects of measures in other policy domains (e.g. changing shop opening hours, social changes), and possess the capability to analyse policy effects on the exposure of specific subgroups (e.g. exposure at urban pollution of vulnerable groups e.g. children and elderly).

5. Assess the inter-linkages between air pollution and climate change. A hierarchy of models and scales will be employed to conduct coupled air quality-climate simulations for a selected set of European cities based on statistical downscaling of present and future scenarios. Generate a representative sample of the possible future states of a dynamical system) and the integration of socio-economic changes.

6. Propose a conceptual framework for sustainable urban mobility. Proposed methods to attract citizens towards collective transport means and soft modes (walking and cycling) will be evaluated for selected test cities using evidence-based analysis and real-time traveller information exploiting smart cities technologies.

7. Empower EU citizens with smart awareness raising activities and build capacity for decision makers through policy recommendations. In collaboration with local authorities, iSCAPE will engage citizens and give them a better understanding of abstract phenomenon such as air pollution and climate change by organising educational sessions on air pollution and health impacts.

	Possible Exploitable Knowledge	Possible Exploitable Products or	Sectors of Application	Owner & Other Partners
1	**Potential of Passive Control Systems in Urban areas**	Low boundary walls, trees and hedge-rows, green walls & roofs, photocatalytic coatings,	Urban planning and Municipal regulatory	To be agreed

		green urban spaces and road optimization.	authorities	
2	**Air pollution and climate interactions current and future prospective**	Impact and effectiveness of emission abatement and policy intervention measures under business as usual scenarios.	Regulatory authorities	To be agreed
3	**Sensor components**	Deployment of sensor arrays in local "hot-spots" where photocatalytic coatings are sprayed.	General Air quality monitoring "in-situ" in one North and one South European city.	To be agreed
4	**Integrated modelling work**	Analyse policy effects of urban pollution on the exposure of specific vulnerable population groups - children and elderly.	Target Cities (Bologna, Bottrop, Dublin, Guildford, Hasselt, Vantaa)	To be agreed
5	**Downscaling and socio-economic integration**	Possible future states of a dynamical system and the integration of socio-economic changes.	Generalisation of interventions from regional climate to local urban scale.	All
6	**Living Labs**	Collective transport means mobility-on-demand systems and real-time traveler information exploiting smart cities technologies	Social Simulation, Opinion Mining	To be agreed
7	**Methodology for extending the Living Lab decisions to other fields**	Citizen's participatory approach	Strategic Environmental Assessment, Urban planning, public participation processes	To be agreed

Table 2; Summary of common exploitable deliverable identifiers iSCAPE partners during the first phase of the project.

It will be also useful for all common deliverables to carry an independent reading of the executive summary for a SWOT analysis in regards to their exploitation potential. The following table summarises for the potential Strengths, Weaknesses, Opportunities and Threats that so far are already considered being common for the iSCAPE project. The reading of Table 3 will allow the identification of elements that are specific this deliverable. If this table does not have all the deliverable features then this could be to the partners and the SWOT table should be amended. In this way,Table 3 will be also updated during the next versions of this deliverable and will become an instrument for a quick identification of exploitation values of this project.

Strengths	Weaknesses
Addresses a wide audience, since climate and urban pollution concerns citizens and every municipality and governments.	The transformation of some data types still needs to be improved.
Easy to adopt monitoring from users without technical or data science background.	Expert knowledge is needed in order to perform advanced analytics (establishing the link of climate change and urban pollution).
Abatement solutions efficient in areas regardless of the geographical origin.	The lack of wide adoption of the open, linked data concepts from public sector information providers.
Multiple data types, data modalities (e.g. spatial, temporal, statistical).	In order for the sensor monitoring to become a market-ready product platform, extra effort will be required.
Capability to access and combine existing (i.e. data visualisation, analytics and data mining) components.	Identify abatement solutions from urban planning, public policy, urban and environmental sociology that are dependent on the geographical location of the urban domain.
Particular focus on unified approach to linked meta-data.	
Dynamic visualisation possibilities.	
Complete set of assessments to mitigation scenarios.	
Open license technologies.	
Opportunities	**Threats**
Technological flexibility and openness to adapt.	Existing (partial) competition may develop in the future.
Citizens are eager to find out how polluted is their local ambient.	Introduction of new guidelines, laws and certifications regarding urban planning, privacy of the citizens and public fiscal data.
Government, administrative and municipal officers want to reassure citizens in terms of creating public awareness.	Bureaucratic resistance/absence of political will by public sector organisations to use the proposed solution.
Regulators want to know which solutions receives greater priority from the citizens' perspective.	Difficult to find use cases and data sets that are in formats easy to process. For example, it is a common that fiscal data sets are published in complex pdf format and are not openly accessible to non-experts.
Worldwide awareness raised regarding integrated datasets, visualisation and comparative analysis tools, from citizen engagement and user groups fostering transparency.	Significant verification in any sensor technology involved in the project
Possibility to include new and complementary passive controls for AQ.	The quality of generalisation might be uncertain from public endpoints.
Integrate with related government, municipal and administrative services.	Identify potential conflicts or overlaps of IPRs.

Table 3; The common SWOT features of the SCAPE project (updated to month 7 after the submission of the first deliverables)

3.3 Individual exploitation plans

In addition to the common exploitation, deliverables that will be worked out during WP7, the second and the third version of the exploitation strategy will incorporate the opinion and the specific exploitation actions that are considered more appropriate for each individual partner. These opinions will be furnished between month 6 and month 18 with bilateral discussions between the project management and each partner. These discussions will be organised on voluntary basis with the partners that are willing to share their views on exploitation. These discussions will not be more than one hour and will be structured according to the topics identified below.

The information that will be asked are already harmonised based on the requirements for H2020 projects (EC Decision C8265, 2016) and will include the template of information shown in Table 4.

Market analysis and identification of competitors are two of the most important activities that need to be successfully completed by month 18. It is diverse for the perspectives of each partner and critical for the assessment of the extent to which the iSCAPE results can be commercialised. For these an initial market analysis is required and the topics to be examined include:

Market positioning - the functional attributes of the solution will be compared to existing solutions (to the extent that these exist) and also to the decision making processes in a subset of EU member states and at various levels. Contacts with the working group of stakeholders (SWFM-QF and SWFM-TI) previously mentioned will be utilised to facilitate this.

Market study - A preliminary evaluation of the main market issues will be undertaken and the channels to market considered.

Assessment of a **roadmap for future progress** - the process by which exploitation can be pursued will be explored.

Finally, it will be required to describe an **indicative business plan** – As part of the technological deliverables the various aspects mentioned above will be brought together to form an indicative business plan. The aim will be to produce a clear vision of the use that will be made of the various results and their commerciality. Issues that are likely to arise include, among others:

- Competitor and alternatives analysis;
- Strengths, weaknesses, opportunities, threats analysis (SWOTs);
- Market size and likely willingness to purchase;
- Potential Routes to market;
- Legal structure and IPRs for future development and exploitation;
- Proposal for a business model, sharing of development/support costs and revenues, synergistic benefits to participants.

Identification Data	Description required
Partner	Name

	Organisational profile
	Business Model
	Geographical area of principal operations
iSCAPE participation	Objectives
	Mission
	Vision
	Anticipated Project Results
Implementation and responsibilities during the project	Primary responsibilities of developing X/Y product and from there, to coordinate further technical implementation, as well as participating in the dissemination effort.
Market Analysis	Market Situation.
	Target Users, audience, products and work teams.
	iSCAPE competitive position.
	IPR that must be respected.
Ease of use	Explain the effort in understanding the user workflow at every step of the use of the final product within the project. Concrete user stories that could be created, ensuring it's easy to understand how to handle the data, how to prepare and map the data correctly, how to make the best use of the visualisation in Living Labs, how to create fiscal transparency portals out of pilot studies analysed.
Domain-specific solutions	Through previous research, if developed a strong network of important contacts who could be proven crucial to leverage the uptake of the iSCAPE tools at various national or international level or in worlds know organisations (WHO etc.) particularly boosting the exploit the outputs
Partnership Strategy	Explain Institutional Partnerships => Partnership with the X/Y Networks makes sense and why and what it will mean in European scene.
	Partnership with Regulators/Governments => Being attentive to the legislation where cities or regions need by law to formulate abatement strategies for air pollution and publish their monitoring data.
Preferred exploitation monitoring	Explain Technical Milestones that represent technical deliverable releases and how to follow-up and

	monitor the impact from development.
	Another way of monitoring and evaluating the work is organising regular dissemination to verify all use cases have been carried on.
Generated standards and expected data formats	Give examples of Open Data standard for Fiscal Data policies.
Functionalities and additional data offered	Give concrete evidence of released products at the web.
	Identify and explore in depth key cases per domain would be very interesting.
	Examples: How to read climate and air pollution data file if we look at public procurements from Living Labs perspective/ Health sector etc.
Preferred exploitation paths and future planning	Custom implementation of visualisation applications, portals data for citizens, cross section of data on climate and urban area other ways of exploring public awareness and monitoring policies.

Table 4; Indicative structure for summarizing the exploitation plans of the iSCAPE partners

For the purposes of WP7, during the lifetime of the project, we will extract from the dissemination table identified in WP8 the information relevant for exploitation. These information in addition to the dissemination event should include the number of participants in each event attended, key persons that might be contacted for an exploitation follow-up and one sentence about the document distributed and a brief mission reporting. In the final version of the exploitation strategy these will be reported in a form similar to the template shown in Table 5. Ideally, these information could be continue to be monitored for a limited period after the projected is concluded especially if the registration process is automated in a web portal.

Date	Location	Theme-Event	Participants	Documents and mission reporting
During the lifetime of the project				
After the project is concluded				

Table 5; Logbook for temporal registering the exploitation plans of the iSCAPE partners

In the remaining two sections of this chapter are presented potential exploitation solutions for two main categories of partners. These solutions that potentially could be suitable for academic partners and those for SMEs and Citizen's Organisations are shown in the following sub-sections. Those lists are not exhaustive and information that is more detailed are expected to emerge during the bilateral exploitation meetings with partners.

3.3.1 Exploitation for Academic Institutions

Academic institutions in theory might expect to have limited opportunities for the exploitation of project results. Nevertheless, they play an important role for further research on basis of successful deployments. These options are more than suitable in enhancing the list of potential end users with a clear net benefit for the overall exploitation of the project. These actions could be:

A platform for further research - Although the results of the iSCAPE project will include a fully operational system specifically focused on the interaction of climate and health in urban areas, there will be many possible improvements and extensions. These potential extensions could be identified during the implementation and a methodology for extending the iSCAPE approach and its components in a number of ways will be worth developing. In particular, several partners will be very interested in extending the approach to higher and lower levels by generalizing and applying it to other regions and extending it to business models. Others might be interested to assess for regulatory authorities what would have been the true natural background of atmospheric pollution beyond which it will be impossible to achieve lower annual mean values etc. the tools for understanding arguments from Living Labs and forum - will also be reused, generalized and extended for other research areas. Areas that will be worth exploring with further research will emerge during the second half of the project and will be incorporated in the final revision of this deliverable.

Other research - iSCAPE has opened a number of research avenues that are worth investigating for environmental monitoring and the effectiveness of passive control systems. The most attractive of these concern the interaction between decision support and optimization techniques and a simulator of a complex system. In iSCAPE one integration and interaction mechanism will be adopted between the climate and urban models and the social simulator (namely an iterative procedure converging to an optimal and feasible solution) but many other such interaction mechanisms are possible. In addition, iSCAPE can open a very interesting research direction i.e. putting decision making at the forefront of complex systems. Indeed, the regional plans should be such that it is achievable by the national driven incentives will be very interesting for several authorities and well as for assessing the impact of local industries. Similarly, there are a number of other policy areas where decisions that are taken affect or are affected by complex systems. Consider, for example, decision making for influencing and improving vehicular traffic, and decision making for planning wild life corridors for preserving biodiversity. This research direction will be further investigated by several partners, by possibly applying for regional or national funds.

National activities in cooperation with other public bodies - As previously mentioned, one of the possible future applications of the iSCAPE system is to apply it to other cities or regions (i.e. at the same level as the pilot system) and at lower and higher scales in particular, for working at

regional, municipality and provincial levels. The experience by working with partners from other countries will possibly help in establishing connections with public bodies such as other regions (and lower level authorities such as, for example, the municipality North Italy in Milan and Varese) in order to make use of the project results through consultancy or agreements between the University of Bologna and the interested public body.

Research synergies with other universities and research centers - The university teams that are already well known in one area will have the opportunity to exercise the combinatorial links with other universities, companies and research centers of the field and amplify their operational potential. The project will support the opening of other collaborations - for example, with computational social scientists, researchers working in opinion and data mining, as well as contacts with industries operating in the industrial monitoring areas.

Improved academic programs - the university group could create Masters and PhD courses suitable subjects emerging from the experience of iSCAPE. These courses include elements which cover decision making and optimization. The concepts of the regulatory policy of the project could be also incorporated in these courses to teach students about the importance of decision support systems for policy making, in order to attracting students and researchers to join the research group of each partner.

3.3.2 Exploitation for SMEs and Organisations for Citizens

SME and citizens' institutions in theory are expected to have opportunities for deliverable exploitations. The domain of their operations is wider than the academic institutions; however, their intervention is higher where there are tangible deliverables. The following are exploitation ideas based on the deliverables identified in Table 2.

Adoption of the developed tools - The exploitation plan for the common deliverables includes: the adoption of a generalisation summary of infrastructural recommendations; the report translating environmental effects into human health; Identification of episodes liaising air-quality with climate change; the geographical harmonisation and generalisation of the iSCAPE operational domains; potentials and prospects with technological integration with other EU funded platforms; and the compilation of the curated knowledge related to Living Labs in the form of guidebooks and policy papers. A collection of proposed emission reductions based on technological and non-technological interventions could be easily become a marketable product in many regional and local authorities worldwide.

Possibilities for further research and collaborations – Beside current approach the iSCAPE approach could be extended to address different types of climate and atmospheric pollution in areas as zones of intensive agriculture, or zone effected by adverse atmospheric circulation conditions. The methodology could be used at different scales, like the national scale, or the municipality level. For these reasons, it is expected that this could lead to promoting the SME deliverables in collaborations with public bodies. As a by-product, these public bodies would get awareness of the existence of computational capabilities and optimisation tools, and this could further foster their use of such deliverables for other (possibly, completely different) projects.

<u>**Licensing of Products**</u> - It is planned to release the semiconductor monitoring platforms and the technological related products as open-source software, so that a community of users can improve it. This is more attractive since the application is implemented on top of open source modules. In addition, regarding the project hardware and sensor platforms aside from the open source licensing the technological contributors in this project have plans to sell the hardware as part of the Smart Citizen sensors and further commercialize their work.

<u>**Consultancy for optimised Passive Controls**</u> - During the various phases of iSCAPE solutions with passive interventions will be released in several steps during the project. The generalisation of deliverables could lead into a collection of solutions that could be optimised. Potentially after the end of the project, the development of optimised tools could lead in for further software development. The industrial partners and the presence of local authorities in the iSCAPE consortium will be of significant value in offering the continuation of this work in other regions.

<u>**Publications**</u> – Industrial partners and institutions can also have plans to exploit the results through publications. These could be targeting popular non-scientific media in order to attract the attention of general public as well specialised incubator journals and international marketing new technological developments. As such, it will be useful for each partner in this category to identify annual and biannual events that will be of interest to systematically participate.

4   Liaison with other projects/initiatives

Although most of the iSCAPE framework is newly designed and based on emerging technological innovations, the partners can capitalize on the mature existing implementations being used from existing projects and other worldwide initiatives. Furthermore, many partners have already identified key European Research projects that could be extended thus, ensuring that iSCAPE will be built upon (and leverage) existing technologies and encourage strong liaisons amongst the enlisted projects. The following are among the key European Research projects identified:

Non-Exhaustive Relevant projects/initiatives (Mar 2017)	Synergies with iSCAPE [with partner]
AIRSCIENCE (Irish EPA): framework for informed decision making through communication of information arising from analysis of a range of AQ, health and policy data.	Support in developing air quality modelling tool and urban mobility framework [UCD]
C-LIEGE (www.c-liege.eu/): assessment of successful soft measures and tools in the area of urban freight transport reducing urban freight traffic and pollutant emissions, generating related energy savings.	Impact assessment for measuring the effects of air pollution mitigation measures [TUDO]
Climate-Proof City (http://ilmastotyokalut.fi):	Support in choice of best passive control systems

planning tools and instructions about climate-proof planning for urban planners and landscape industries.	and pilot sites in Vantaa case study [FMI]
DATA SIM (www.datasim-fp7.eu): highly detailed spatial-temporal microsimulation methodology for human mobility, grounded on massive amounts of Big data of various types and from various sources (GPS, mobile phones and social networking).	Detailed spatiotemporal microsimulation Methodology for human mobility, allowing iSCAPE to model different scenarios as part of the framework for Sustainable Urban Mobility [UH]
EO2HEAVEN (www.eo2heaven.org/): improvement of understanding of the complex relationships between environmental changes and their impact on human health.	Impact assessment for measuring the effects of air pollution mitigation measures [JRC]
ESPON Climate (www.espon-climate.eu): European-wide assessment of CC well as mitigation measures from the perspective of spatial planning.	Input for vulnerability assessment [TUDO]
Greening Transport (Irish EPA): assessment of the potential to improve usage of sustainable transport modes and subsequent emissions reductions.	Simulation of emission scenarios as part of the Sustainable Urban Mobility framework [TCD]
RECAST (http://en.ilmatieteenlaitos.fi/recast): assessment of the impacts of climate change induced uncertainty and growth of weather variability on selected infrastructure for a better adaptation.	Input for vulnerability assessment [FMI]
Making Sense (H2020 LEIT ICT): harness the collaborative power of networks of people, knowledge, and sensors, to create awareness about the multiple sustainability threats that our societies are facing.	Open source hardware to enhance Communities' understanding of the environment and their potential for action [IAAC]
TESS (www.tess-transition.eu): role of community based initiatives in transitioning to a sustainable and low-carbon Europe by measuring carbon emissions savings.	Engagement/collaboration with citizens' initiatives, based on scientific methods [T6].
ICARUS (www.icarus2020.eu): Integrated climate forcing and air pollution reduction in urban systems.	Propose detailed policies and measures for air pollution and climate control for the short and medium term (until ca. 2030). For the long term perspective (2050 and beyond) will develop visions of green cities and explore pathways on how to start

	realizing these visions [UNIBO, FMI]
CLAiR-City (www.claircity.eu): involves thousands of people in cities across Europe, enabling the decision of the best local options for a future with clean air and lower carbon emissions.	Existing data across many more cities to drive our innovative public engagement activities. Data collected over 50,000 residents in the EU will be used to build new models of urban air pollution and carbon emissions. These new models and scenarios will make it easier for cities to reduce emissions and make a positive change in peoples' lives [All].
CITI-SENSE (www.citi-sense.eu): development of sensor-based citizen's observatory community for improving quality of life in cities.	Develop, test, demonstrate and validate a community-based environmental monitoring and information system using innovative and novel applications, Exploit observatories to empower citizens to contribute to and participate in environmental governance, to enable them to support and influence community and societal priorities and associated decision making [All].
BIG DATA-EUROPE (www.big-data-europe.eu): Big data have the potential to create new knowledge and intelligent solutions for economy and society. Such data contribute to the technical progress in key sectors and help shape business.	Innovative technologies, strategies and competencies for the beneficial use of Big Data to address societal needs. Climate, Energy, Food, Health, Transport, Security, and Social Sciences are the most important societal challenges. Integration of medical data, the decentralized energy supply and the optimization of traffic flow in large cities is of significant interest [IAAC, JRC, FMI, FCC].

Table 6; Non-Exhaustive projects and initiatives with synergies to iSCAPE. To be updated during the next two versions of the exploitation strategy.

The aforementioned are projects that have been identified as having synergies in the first nine months of the project and has already expressed the liaison interest for a common exploitation event. Certainly this list will be enriched with more projects suitable for exploiting citizens' participation and Living Labs experiences

At the same time, iSCAPE has already participated in many policy and networking events (and will continue to do so) organized by many forums of industrialists and regulators. The management team is also closely linked with the other two system projects funded as Research and Innovation Action call H2020-SC5-04-2015 aiming at "Improving the air quality and reducing the carbon footprint of European cities". The partners had the chance to meet several participants of relevant projects from the 5th Framework programme onwards and we are aiming to consolidate our horizontal interactions by updating regularly the contents of Table 7 while at the same time create constructive synergies with previous works.

5 Commercial Arrangements

In Section 3.3 it is already identified the need to explore the commercial and regulatory framework and establish future developments of project results. This includes specific aspects such as business models, legal structure, funding, sharing of development and support costs together with the future treatment of revenues. This also needs to include the potential of the involvement of the stakeholders working groups for SWFM-QF and SWFM-TI who are currently not direct members of the consortium.

These aspects will be considered in detail, in the second version of the exploitation strategy it is worth listing potential areas where special efforts should be made in the development of certain deliverables for facilitating a more general exploitation. These efforts should be categorised into the following themes:

- Geographical applicability into different urban domains or at different "hot-spot" (street canyon) areas within each urban domain– it will be useful to identify what data needs are required and if there are processes that could be automated with a harmonised methodology.
- Temporal applicability. Will the conclusions of obtained results allow the generalisation over longer periods or are there any technical difficulties that will restrict the process adopted in iSCAPE.
- Population generalisation- are the citizen groups representative enough and how the conclusion reached from each population group is expected to have additive characteristics in emission reduction and not introduce auto-cancelling effects?
- How the non-technical abatement control measures will be accepted by the various end users from Living Labs to regulatory authorities on the basis of current deployment applications?
- Are there any areas of technological solutions that could be reached in the next months for reducing the monitoring limitations and what will be the appropriate vehicle on where to base such solutions (satellites or in-situ measurements)?
- What are synergies with the sister projects funded from the same call? What other projects might be helpful in offering complementary solutions so that the market share will be increased?
- What are the specifications that will be necessary in potential clients so that further funding will be successful?
- What deliverables of the project will suitable in order to satisfy the needs of potential end-users in developing countries?

These questions will not be easily answered before the last versions of the exploitation strategy. These are listed here as guidance questions that will help in a broader deployment of iSCAPE results. It might be useful to examine this list regularly and review its applicability at the Management Board meetings. Members of the Scientific Advisory Board should also be consulted especially during the stages of the second half of the project (after month 18).

6 Final Recommendations for the first iteration

The goal of this exploitation strategy is to offer the best possible path to take forward the local iSCAPE results in the form of:

a) A general evaluation of the effectiveness of policy;
b) For recommendations to local urban decision-makers for mitigating of atmospheric pollution;
c) In promoting collaboration with other European projects in creating advance technological improvements with significant spin-offs.
d) For adding value to European businesses and innovation institutions by promoting specific project modules in the international market, and
e) For identifying European and worldwide developing areas where the project outcomes will maximise the outcome of interventions and provide expertise in areas with significant impact.

The current document was concluded after a successfully discussion between several partners associated with the management of the exploitation working package, after consulting the exploitation requirements from all H2020 projects (EC Decision C8265, 2016) and after reviewing for four weeks the deliverables that were produced during the first six months of iSCAPE. It serves as basis for the second and third versions of exploitation for defining future opportunities and possibilities of for increasing the reach of the expected deliverables of iSCAPE. It also harmonises the actions needed promoting and raising awareness among the partners for looking into deliverable strengths, weaknesses opportunities and threats that might limit the future commercialisation of the outcomes after the project lifetime.

The success of such a strategy is strongly based on an "inclusive approach" as has been clearly stated in many sections of the iSCAPE proposal and in the DoW. Indeed, stakeholders, Living Labs, authorities, industries working in the sector of atmospheric pollution and climate change and international organisations working in developing countries that take part at all the iSCAPE's activities. It is worth mentioning that iSCAPE right from the beginning focused on the utilisation of the knowledge on Living Labs in the specific area of urban atmospheric pollution and its relationship on climate.

Finally, in order to maximize exploitation, partners will be directly encouraged to take part in spin-off events in the frame of H2020 information days (ICT and ERC); will be encouraged to interact with industry in order to explore the preliminary requirements (ECSEL Joint Undertaking, ARTEMIS Industry Association and all similar initiatives that from part of H2020 technological innovations); and interact with regulatory authorities that will act as end-users for utilising key deliverables as they will become available during the coming months (EU Cities forums etc).

7 References / Bibliography

EC Decision C(2016)8265 of 13 December 2016. Horizon 2020: Dissemination, Exploitation and Evaluation,http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-comm-diss_en.pdf (accessed Mar 2017).

EMEP, 2002. Uncertainty Treatment in Integrated Assessment Modelling, Center for Integrated Assessment Modelling (CIAM), http://www.iiasa.ac.at/~rains/Conferences/Uncertainty-Jan2002/announcement.html (accessed Mar 2017)

Eskelinen, Jarmo; Garcia Robles, Ana; Lindy, Ilari; Marsh, Jesse; Muente-Kunigami, Arturo, 2015. Citizen-Driven Innovation: A Guidebook for City Mayors and Public Administrators. World Bank, Washington, DC, and European Network of Living Labs. © World Bank and ENoLL. https://openknowledge.worldbank.org/handle/10986/21984 License: CC BY-NC 3.0 IGO.

Eurostat, 2015. Statistics on European cities. http://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_European_cities (accessed Mar 2017)

European Commission, Executive Agency for Small and Medium-sized Enterprises (EASME). Grant Agreement: 689954 — Improving the Smart Control of Air Pollution in Europe (iSCAPE).

H2020 2014. Communicating EU research and innovation guidance for project participants http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf (accessed Mar 2017).

iSCAPE, 2017. Improving the Smart Control of Air Pollution in Europe: https://www.iscapeproject.eu/ (accessed Mar 2017).

SC5-04-2015, 2015. Improving the air quality and reducing the carbon footprint of European cities: http://cordis.europa.eu/programme/rcn/664576_en.html (accessed Mar 2017).

Skouloudis, Andreas N. and Rickerby, David G., 2016. Verifiable emission reductions in European urban areas with air-quality models, Faraday Discuss., 2016,189, 617-633, http://pubs.rsc.org/en/content/articlelanding/2016/fd/c5fd00189g#!divAbstract (accessed Mar 2017)

Sweeney, Eugene, 2015. Invention and Innovation in H2020: Expkoitation strategies, business models and case studies. https://www.iprhelpdesk.eu/sites/default/files/events/06%20Exploitation%20strategies%20and%20business%20models.pdf (accessed Mar 2017).