Open Schools for Open Societies

Deliverable 4.1

Open Schooling Accelerators

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Title	D4.1 Open Schooling Accelerators
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Abstract	One of the keys of the OSOS Project are the activities schools must perform during the lifespan of the project. These should be adapted to each school, depending on their characteristics and needs. The project will provide a varied set of 'Best Practices' - a minimum of 50 - which will act as accelerators of innovation. These OSOS Accelerators are the inspiration for the introduction of the OSOS approach in the schools that will be participating in the project. This document reflects the relevant information, definition, specification, requisites and data regarding OSOS Accelerators and the process involved in identifying, selecting and publishing them for the OSOS community.
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Executive summary

The Open Schooling Accelerators are “the best practices that will act as accelerators of the introduction of OSOS approach in participating schools. They will help innovative schools to proceed more and develop their innovative ideas in order to incorporate new localised projects that could provide new solutions for the school and its community, so as in turn to bridge the gap between formal and informal learning settings and create new opportunities for personalisation at different levels (student, teacher, school)” (D2.1, p.10).

One of the main goals of the Work Package 4 (WP4), led by the University of Deusto, is to develop the framework to identify, evaluate, select, generate and publish those Open Schooling Accelerators or “best practices”.

This deliverable is structured as follows:

- Chapter 1 is an introduction to the document scope and structure.
- Chapter 2 presents the OSOS Accelerator concept. It includes both the definition and the specific characteristics defined in previous deliverables, which describe the OSOS approach, such as the four Ps and the Responsible Research and Innovation-RRI Pillars.
- Chapter 3 describes the methodology pursued to identify, evaluate, select and publish the OSOS Accelerators. It includes the planning, procedure and tools required to assess submitted proposals as well as the templates needed to publish and share them with the schools involved in the project and beyond.
- Chapter 4 shows the template developed to gather information about potential OSOS Accelerators. Individuals or groups from all partner countries will use this template to submit their proposals, which will later be assessed. High quality activities that fit in with the OSOS approach will be selected as OSOS Accelerators and will be used in the two piloting phases.
- Chapter 5 describes the process that may be pursued by any individual, but which is especially aimed at National Coordinators, in order to transform any ideas that teaching staff, schools or other agents may have and that they may wish to implement within the framework of the project into OSOS Accelerators.
- Chapter 6 shows the conclusions of this work, the difficulties found in the process and the next steps to be taken.
- Annex I includes technical information about the online form developed to gather proposals for OSOS Accelerators. Annex II presents the rubric for the qualitative assessment. Annex III shows the template designed to publish the information on the website and ODS platform of selected OSOS Accelerators. Finally, Annex IV includes a detailed description of some examples used in this document.

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1 Introduction

1.1 Purpose of the document

This deliverable, D4.1 Open Schooling Accelerators, describes the OSOS Accelerators and the methodology used to identify, assess, select and publish them. Any individual or group might propose an activity in order to become an OSOS Accelerator, and National Coordinators are the main responsible for this task, they should identify good practices of open schooling and encourage individuals or groups implementing good initiatives to submit them to become OSOS Accelerators. For anyone who has an idea for an activity that promotes open schooling, we need to be aligned and have a common understanding of what an OSOS Accelerator is (the definition) and how it can be proposed and shared among the whole OSOS community (the methodology).

This document therefore includes:

- A complete definition of OSOS Accelerators and the characteristics they should feature in order to boost innovation in open schools.
- The description of how ideas can be submitted to become OSOS Accelerators and, also, how different initiatives and actual initiatives can be enriched in order to become OSOS Accelerators.
- The assessment process involved in selecting the best ones to serve as Open Schooling Accelerators.
- The publishing process required to share these activities with the OSOS community.

1.2 Scope and target audience of the document

The main target audience of this document are the National Coordinators, since they are responsible for identifying initiatives deemed suitable to be transformed into OSOS Accelerators and they have to ensure the availability of a set of initial proposals. They will spread the word about OSOS to their educational networks so that the project may include the most innovative Open Schooling initiatives.

In a second stage, teachers, educators and other stakeholders could use this document to understand the OSOS Accelerator definition and provide new ideas for open schools involved in the project and beyond.

1.3 Structure of the document

This document is organised into six chapters and designed to be read sequentially – respecting the order of the different sections as each one requires reading and understanding of the previous sections. A brief description of each section is provided below:

- Chapter 1: Introduction to this deliverable, scope and structure.
- Chapter 2: OSOS Accelerator definition. This includes the theory, characteristics and specifications.
- Chapter 3: Methodology, including the planning stage that describes the steps and tools used.
- Chapter 4: OSOS Accelerator proposal template.
- Chapter 5: How to transform the proposals into accelerators. This chapter proposes guidelines and recommendations to enable National Coordinators to guide and support schools to transform their activities into accelerators.
- Chapter 6: Conclusions.

2 OSOS Accelerator definition

The work carried out thus far within the framework of the OSOS project – apart from the management and coordination tasks – includes the following: definition of the Open Schooling Model (D2.1), the strategies needed to implement this model in schools (D2.2), the roadmap to be pursued by schools involved in the project to enable them to become more open schools (D2.3), support mechanisms and tools for schools (D3.1) and the definition of OSOS incubators (D3.2). Another very important aspect is the assessment of the project in its many facets – a task performed within WP6.

Within this context, OSOS Accelerators entail a step forward in transforming schools into focuses of innovation that are open to their community. They constitute initiatives, activities or projects with certain characteristics that will serve as a basis for schools to develop their opening and innovation plans. These initiatives, which have been validated by the consortium as an example of good practices, will be adapted to the characteristics and requirements of each school and will speed up the implementation process for the OSOS approach.

2.1 Definition

The definition of an OSOS Accelerator has been provided at the beginning of the project (D2.2, Section 1, p. 10):

> "The OSOS best practices will act as accelerators of the introduction of OSOS approach in the participating schools. They will help innovative schools to proceed more and develop their innovative ideas to new localised projects that could provide new solutions for the school and its community, for bringing the gap between formal and informal learning settings and creating new opportunities for personalisation at different levels (student, teacher, school)."

Based on the OSOS pedagogical framework that has been established in the project (WP2), the OSOS Open Schools project will promote a series of educational activities in the form of real-life projects. They will use innovative ideas and creativity and will empower students to actively engage themselves in the learning process and improve their conceptual understanding in various science-related topics.

These ideas are essential for this project. We will allow the agents involved in the OSOS to share their ideas, so that we may then select the best ones to be Open Schooling Accelerators of innovation in accordance with the OSOS model. We will allow teachers, principals and other members of the educational community to identify creative activities for teaching science, or to assemble parts of different educational activities into interdisciplinary learning scenarios.

A major aspect of Accelerators is that they will be responsible for speeding up innovation both in schools that form part of the two pilot phases of the project (1st Pilot Phase in 2018; 2nd Pilot Phase in 2019, as described in D1.1. - Section 4.1, page 20) and in any school interested in the Open Schooling philosophy, irrespective of whether they form part of the project or otherwise. The main information provided by the accelerators will be shared via the OSOS website, as described in section 3.4 of this deliverable.

Not any activity can become an Open Schooling Accelerator, as there are some characteristics that need to be established. Below we describe the criteria required to determine which ones are suitable to be used in OSOS.

2.2 Characteristics and Specifications of an OSOS Accelerator

An accelerator needs to feature a series of characteristics that make it suitable for developing the OSOS Model (D2.1), which we list below.

2.2.1 The Four Ps

Some of these characteristics are referred to as the Four Ps: placed, purposeful, passion-led and pervasive.

- **Placed**: the activity is located, either physically or virtually, in a world that the student recognizes and is seeking to understand.
- **Purposeful**: the activity feels authentic; it absorbs the student in actions of practical and intellectual value and fosters a sense of agency.
- **Passion-led**: the activity enlists the outside passions of both students and teachers, enhancing engagement by encouraging students to choose areas of interest that matter to them.
- **Pervasive**: the activity enables the student to continue learning outside the classroom, drawing on family members, peers, local experts, and online references as sources of research and critique.

2.2.2 RRI Pillars

One of the key aspects of OSOS is the inclusion of RRI — Responsible Research and Innovation — principles. OSOS Accelerators should share the RRI Pedagogical Principles or RRI Pillars accordingly.

Figure 1: RRI Pillars

2.2.2.1 Governance

Governance is an RRI characteristic that refers to the level of cooperation of an activity or project with other stakeholders - for example, families, local companies or public government. A good Open Schooling Accelerator needs to involve the community around the school, and so this is a key characteristic in order to ascertain the best activities to be developed within the project.

Example: an activity that considers improving green spaces in the community where the school is located may incorporate experts in gardening (whether businesses or local government), meteorologists or even families interested in the matter.

More info at https://www.rri-tools.eu/governance

2.2.2.2 Engagement

More than just the engagement of stakeholders is needed in OSOS: they must participate actively in the educational process. This is reflected in the engagement characteristic of the RRI Pillars. The activity needs to be based on a participatory model, in which all the stakeholders involved (students, professionals, expert consultants, community, etc.) will share clear roles and responsibilities.

Example: following on from the previous example, the different stakeholders do not need to simply be one-directional communication channels – they should also form an active part of the educational process, e.g. by providing feedback to students' comments, adding new resources so as to expand information or putting forward new ideas to those originally proposed.

More info at https://www.rri-tools.eu/public-engagement

2.2.2.3 Gender equality

An RRI activity must be build on 21st century basic gender principles: it must be inclusive and open to all genders by encouraging diverse research and innovation teams to be more creative, and to make better decisions. With a good gender equality approach, individuals are free to develop their abilities and to make choices without being limited by gender stereotypes.

Example: a series of principles need to be pursued that may ensure gender equality when implementing an activity. For instance, it is important that the subject matter does not in itself refer to gender stereotypes (e.g. football/cars, beauty/care) , and there must be gender equality when putting together working parties whereby roles rotate among the different members. Any external agents who take part also need to be of various types in this sense to ensure that young people may have reference points for different genders in all areas of expertise.

More info at https://www.rri-tools.eu/gender-equality

2.2.2.4 Education for responsible citizenship

An Open Schooling Accelerator must be a key factor in promoting innovative problem-solving and critical thinking, proposing challenges in a social, economic or ethical topic, and allowing the stakeholders to share responsibility while solving social challenges, in so doing developing responsible citizenship among students.

Example: the gardens around the school are public spaces which we, apart from improving, need to learn to look after, protect and hold in high regard in modern-day societies and in urban and rural milieu.

More info at https://www.rri-tools.eu/science-education

2.2.2.5 Ethics

The Ethics RRI characteristic refers to the research integrity, to the need to share results and ideas, and also to the responsibility shared by all actors involved in the research process.

Example: an activity needs to be governed by ethical principles and values in what is being offered with regard to all agents involved, while at the same time also taking into account the opinion of all students and stakeholders engaged in the activity.

More info at https://www.rri-tools.eu/ethics

2.2.2.6 Open Access

The Open Schooling Accelerator materials must be freely accessible, with no further barriers. The activity must be transparent, with free re-use rights, promoting excellence in academia and wide access to research as a public issue.

Example: tools such as the Internet enable us to easily publish and share the materials used to prepare an activity online, and even our work and conclusions. This may be material and multimedia content (audio, photographs or video) in a blog format, or in general any online place where the project is shared with other individuals who are interested in it. Students need to be encouraged to publish the result of their work and talk during the process about the different intellectual and industrial property models and licences, etc.

More info at https://www.rri-tools.eu/open-access

2.2.3 Others

An individual or a group might propose an Open Schooling Accelerator, they can be the original developers or designer of the activity or anyone participating in it. In the project, we need to gather additional information in order to enrich or modify the activity, if required, as well as to contextualise it. Some of the data we need includes:

- The name and educational role of the person who proposes the activity.
- The name of the organisation that implemented the activity.
- The country of origin, etc.

In addition to this general information, the aspects described above (the Four Ps, the RRI Pillars and these other characteristics) enables us to create a general and complete picture of the Open Schooling Accelerator.

3 Methodology

This section describes the steps followed and the tools used for the whole process from identifying interesting activities of open schooling to publishing them as OSOS Accelerators. This involves submitting them for evaluation, assessing them according to OSOS criteria, selecting the best as OSOS Accelerators and publishing them to be used in the piloting phases by OSOS hubs (phase 1) and the whole Open Schools community (phase 2).

We have developed a unified work plan that allow us to gather together interesting activities in Europe and beyond. This requires a process led by National Coordinators so we may gather them in time and with suitable quality, in accordance with a standardised process. This process is coordinated by the University of Deusto in its capacity as WP4 leaders.

3.1 Planning stage

By January 2018, when the first OSOS Piloting with 100 schools in Europe begins, it will be necessary to have published OSOS Accelerators so schools know them, can adapt to school's characteristics and needs, and collaborate with other schools, where possible. These 100 schools are the OSOS hubs that in a first phase will test the whole OSOS approach and tools.

We will adhere to the following schedule to ensure the accelerators are ready on time:

Table 1: Schedule for ensuring OSOS Accelerators are published for the first piloting phase.

Task	Description	Deadline date
Prepare the submission of proposals	Design a form that gathers the basic characteristics and those specific ones required by an activity to be considered for open schooling. This form will be used to gather together proposals put forward by any group and individuals who may wish to share activities they have implemented, and which are in accordance with the OSOS approach.	15/10/2017
Discover	Disseminate the form in all countries represented by the consortium and by means of which the OSOS Accelerator proposals will be gathered.	From 15/10/2017
Select	Assess the candidates submitted via the form and select the OSOS Accelerators - at least 25 before the first piloting phase (January 2018) and at least a further 25 before the second phase (scheduled for the end of 2018). The assessment tools must be ready to use, and so we have defined the criteria to grade the quality of activities submitted.	15/11/2017
Share	Enrich the selected OSOS Accelerators with more detailed information, see Section 4, about the specific methodology pursued in different sessions with students. Share all the information about accelerators on the OSOS website and in the ODS OSOS Community, to which schools will gain access and will develop their projects on them.	15/12/2017

At least 50 OSOS Accelerators are required throughout the project, 25 of them for the first piloting phase (January 2018).

3.2 The Proposal Template

A robust system is required that enables proposals to be homogeneously submitted for OSOS Accelerators. These proposals may take the form of already-implemented projects in one or more

countries or ideas that may emerge from teaching staff or schools that they may wish to implement according to the OSOS approach. Taking into account these needs and the geographic dispersion of the proposals submitted (at least all the countries represented by the consortium, but even beyond Europe), an online form has been designed which is permanently during the lifespan of the project, available via any browser with Internet connection – more specifically, a Google Form.

Several aspects have been taken into consideration when designing the online form in order to gather full information and make it easy to complete as follows:

- Length of the questions and answers for the person who fills in the form, keeping it as short as possible.
- At the same time, the form should gather full, high-quality information, according to the project requirements.
- It must take into consideration the main characteristics of the OSOS approach, such as the Four Ps and the RRI Pillars.
- It should gather personal and contact information, descriptions and summaries of both the activity and the organisation that proposes the activity.
- Bearing in mind that the number of Open Schooling Accelerator proposals may be very high, the form must be as simple as possible to enable us to make an automatic assessment in some aspects. This is why many of the answers are Likert scale-based or multiple-choice options and makes the form easy to complete.

Taking into account the aforementioned, and after several iterations among project members, the result is the form used to gather proposals for Accelerators shown in Annex I.

3.2.1 Who can submit proposals?

Anyone, individual or group, interested in the project approach may propose his or her own activities, projects or ideas. National Coordinators have to ensure a minimum number of proposals from each country and support schools or individuals in submitting their proposals if they should require. National Coordinators also need to support people with good ideas for Open Schooling activities that have not yet been implemented, to shape them according to OSOS characteristics.

The following is a sample of profiles and organisations who may submit proposals:

- National Coordinator: they identify an idea or activity that may fit the OSOS approach.
- National Coordinator: supporting a school in submitting a proposal about an activity or project they have already implemented. The teacher or anyone related to this activity may also submit the proposal.
- National Coordinator: supporting someone with an idea that needs further development in order to fit the OSOS approach.
- Anyone in the educational community, who proposes an already-implemented activity to become an Open Schooling Accelerator.
- Anyone who has participated or collaborated previously in an open schooling activity.

However, as the form is public, anyone interested can submit proposals so that we may review and assess them, regardless of their relationship with the National Coordinator or project.

3.2.2 Translating the form into the languages of the OSOS consortium

The form has been created in English, the working language of the consortium. However, we have discussed the need to arrange for it to be translated into different languages, according to the demands of some National Coordinators who consider the language a barrier to gathering proposals.

To meet this demand, we have created a mechanism so that the National Coordinator may access a copy of the original form in English, and translate it into their national or regional language. There will be versions available in: Dutch, Portuguese, Hebrew and Spanish.

3.2.3 The information gathered

Google Forms provide all the answers in a spreadsheet via the Google Drive platform. There is one spreadsheet for each language. WP4 leaders will regularly combine the information from different spreadsheets to create a single one for easy access and assessment purposes. Each National Coordinator is responsible for translating the answers to open questions into English.

The form has been devised with a view to gathering specific data about certain information regarding the activity and its characteristics, while at the same time offering an open perspective that may enable the organisation to insert a more in-depth and completely free description with which to complete the other answers.

In this section, we describe the value attached to these fields on the form while at the same time proposing some advice and recommendations that National Coordinators may take into account when helping organisation to propose their activities.

THE DESCRIPTIONS

Both the four Ps and the RRI characteristics are answered through a Likert scale (1-5), and each of them contains a text field where information may be expanded on. Only the Likert questions are mandatory, whereas the text fields are optional.

The work undertaken to align the form with the theoretical aspects of an OSOS activity, marked in previous deliverables[1], means that some definitions may appear confusing for participants who are unfamiliar with the most technical and specific details about the project. To facilitate understanding of these concepts, a more detailed, informative explanation has been included in an attempt to clarify each of the four Ps and RRI pillars in more detail. However, occasionally this may prove not to be sufficient for specifically defining the response to each item and the user is especially advised to expand on their response using the respective optional text field for each item. All the information inserted in these text fields will be dealt with on an individual basis with a view to assessing the response on the Likert scale to the respective characteristic attached to the activity.

THE "BLANK" FIELDS

Various questions have been included throughout the form that enable free text to expand on the responses given using quantitative scales. These are optional, but of great help in processing assessment from the qualitative process.

The team of evaluators does not have in-depth knowledge of all and every activity proposed, and therefore the information provided via these fields is extremely important for learning about the relevant details.

Similarly, the final question on the form that requests additional comments over the whole proposal. Although this is optional, it is highly advisable to complete it with any information deemed complementary to the activity which may help us to assess it, e.g. current state, future lines of work, advice and recommendations for putting it into practice and, in general, any additional details that may be interesting for a school to know about the project.

We urge National Coordinators to encourage the organisations who are going to put forward activities to use these fields to provide complementary information about the activity being proposed.

3.3 Assessment of proposals

Each proposal received via the online form will be assessed on an individual basis, and will be awarded scores following two types of analysis: quantitative and qualitative, both of which are described below.

[1] See Section 2.2.2 (page 19) and Section 3.1 (page 21) from D2.1 - Open Schooling Model.

3.3.1 Quantitative assessment

The form has some questions that can be used for the quantitative assessment Table 2 shows how this scale is implemented, and some examples of its practical application can be found in Section 3.5.

Table 2: Quantitative Assessment Form

# item	Question about…	Possible answers	Points	Max. points	Weight /100	Conversion rate
4	Age	<5 6-7 8-9 10-11 12-13 14-15 16-17 18+ All ages	0 1 1 1 1 1 1 0 6	6	5	x5/6
6	Community	Yes No Other (…)	1 0 [0..1]	1	10	x10
8	Topics	Science Computing Design and technology Mathematics Citizenship Foreign languages Music History Geography Physical education Art and design Language and literacy Other:	1.5 1.5 1.5 1.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 [0..10]	10	10	x1
9	Resources needed	0€ /student (0€, 1€] /student (1€, 3€] /student (3€, 10€] /student >10€ /student	5 4 3 2 0	5	10	x2
10	Implemented or idea	Already implemented Designed, but not implemented yet New idea Other:	5 3 2 [0..5]	5	5	x1
12, 14, 16, 18	Four P's	Placed [1-5] Purposeful [1-5] Passion-LED [1-5] Pervasive [1-5]	[1..5] [1..5] [1..5] [1..5]	20	30	x1.5
21, 23, 25, 27, 29, 31	RRI Pillars	Governance [1-5] Engagement [1-5] Gender equality [1-5] Ed. resp. citizenship [1-5] Ethics [1-5] Open Access [1-5]	[1..5] [1..5] [1..5] [1..5] [1..5] [1..5]	30	30	x1

3.3.2 Qualitative assessment

The qualitative assessment process attempts to provide a response to the open-response questions included in the questionnaire (see Annex I), which is not possible to assess any other way. The aim via this procedure is to gather the main information so as to ascertain whether the activity may be aligned or not with the philosophy put forward by the OSOS project.

The evaluator might influence qualitative assessment. To avoid this effect we have designed a rubric that helps establish the assessment criteria so as to prevent the impact of subjectivity. On the other hand, some of these fields are optional on the form, meaning their weight in terms of the total will be taken into account by the panel of expert evaluators.

Below we describe the procedure for conducting the qualitative assessment, and the rubric and fields of application are also shown. As in the case of quantitative assessment, some practical examples of its application are shown regarding candidate proposals for an Open Schooling Accelerator.

3.3.2.1 Qualitative items on the form

Table 3 shows the qualitative fields within the online form (see Annex 1), as well as the type of entry accepted. “Description of the activity” is the only mandatory field – the rest are optional.

Table 3: Qualitative items on the online form

# item	Name	Data type
2	Description of the activity	Text
11	Motivation	Text
13	PLACED text answer	Text
15	PURPOSEFUL text answer	Text
17	PASSION-LED text answer	Text
19	PERVASIVE text answer	Text
20	More comments about 4 P's answers	Text
22	GOVERNANCE text answer	Text
24	ENGAGEMENT text answer	Text
26	GENDER EQUALITY text answer	Text
28	RESPONSIBLE CITIZENSHIP text answer	Text
30	ETHICS text answer	Text
32	OPEN ACCESS text answer	Text
33	More comments about RRI Pillars	Text
37	Description of the organisation	Text

All have unlimited length and participants are free to write the text they wish, although we expect small paragraphs that describe the responses with which the question is associated in greater detail, thus complementing the quantitative items to which it is related.

3.3.2.2 Assessment rubric

Once described the qualitative items of the form, this section presents the rubric used by reviewers in detail. The aim is to ensure a homogeneous, simple, quick and direct assessment from responses to the qualitative items on the form shown in Table 3.

The indicators and associated descriptors have been developed on an individual basis for each item, although some have common characteristics, as they are questions about items that are related to each other.

Annex II contains the rubric we have used for the qualitative assessment.

3.3.3 Final assessment

Final assessment of the proposals must combine the results of both quantitative and qualitative assessments, and we suggest assigning the weights system shown in Table 4 in order to obtain this final assessment.

Table 4: Weights proposed for the final assessment

Final assessment	100%
Quantitative assessment	60%
Qualitative assessment	40%

Furthermore, and with a view to considering the inclusion of the activity's proposal within the Open Schooling Accelerator selection process, it will be necessary for this to meet a series of minimum values within the items referred to in the questionnaire. Table 5 shows these minimum values.

Table 5: Minimum values proposed

# item	Question	Min. value (Max. value)
4	Age of the students involved	2 (6)
6	Community	1 (1)
12	PLACED	2 (5)
14	PURPOSEFUL	2 (5)
16	PASSION-LED	2 (5)
18	PERVASIVE	2 (5)
21	GOVERNANCE	2 (5)
23	ENGAGEMENT	2 (5)
25	GENDER EQUALITY	2 (5)
27	RESPONSIBLE CITIZENSHIP	2 (5)
29	ETHICS	2 (5)
31	OPEN ACCESS	2 (5)

In the event that some of the proposals should fail to exceed any of the minimum values, we will contact the creators to look into the possibility of applying the modifications and adaptations required to ensure that these values are surpassed and, hence, to be able to consider them for inclusion within Open Schooling Accelerators.

3.4 Publishing and sharing

Following the compiling, assessment and selection process of the Open Schooling Accelerators, the activities chosen need to be shared together with the schools which are going to use them in the project implementation phase (piloting). OSOS Accelerators should be discoverable and full information will be provided to ensure that educators and teachers may adapt them to their specific requirements and, ultimately, implement them in the classroom.

We suggest to use for dissemination: 1) the project's official website (https://www.openschools.eu/) as an open, free-of-charge and constantly available means of communication; and 2) the section for the OSOS community within the OpenDiscoverySpace[2] platform.

3.4.1 Sharing publicly on the project website

The project website, described in more detail in D7.2, is a result of the work done by WP7. Together with WP4, we have defined the information about each accelerator to be published on the website.

[2] OSOS community http://www.opendiscoveryspace.eu/en/community/osos-community-848423 and Open Schooling Accelerators community http://www.opendiscoveryspace.eu/en/community/osos-best-practices-accelerators-848632

On the official OSOS website there is a space set aside for disseminating the innovative practices pursued by the OSOS project, where the activities to be carried out can be shared and also for fostering ideas in individuals interested in the Open Schooling philosophy. The accelerators will be published in the "inspiration" section, where a homogenous, aesthetic style will be maintained.

The complete activity will not be shared via this channel, but solely some sections such as: abstract/short summary, general information (duration, subject matters dealt with, organisations involved and ages of students), and multimedia material deemed interesting to share online. The more specific details about each activity will be available within the ODS platform, where they will be shared through the OSOS community.

The process involving sharing an activity on the OSOS website will be optional, according to the wishes of the proposal's creators. To this end, a section has been included in the Accelerator Template that asks whether the creators concerned would like their activity to be publicly available on the project website.

3.4.2 Sharing internally with participants in the project (ODS)

Together with WP3, considering supporting tools described in D3.1 and D3.2, we have put together a procedure to describe the way in which any user may access the documentation pertaining to each accelerator via OpenDiscoverySpace. Two communities have been created in it for the OSOS project, one of which is exclusively set aside for sharing Open Schooling Accelerator documentation and about which project members can debate.

A specific template has been created to disseminate and share Open Schooling Accelerators among members participating in the project, and this is described in detail in Section 4 of this deliverable. The consortium members discussed and agreed the design of this template and the information it contains.

Once candidate activities have been received (see Section 3.2) and assessed (see Section 3.3), the most interesting are selected to transform them into the final Open Schooling Accelerator candidates. We will then get in contact with the creators of the activities selected so that they may fill in the remaining fields on the template described in Section 4 and referenced in Annex III of this deliverable.

3.5 Accelerator proposal examples

Below you will find two examples of Open Schooling Accelerators, submitted in an early test version of the online form. You will also find a table with the values obtained using the rubric described in Section 3.3, with the final score being out of 100 points.

3.5.1 Example 1: Dark Sky Rangers

The following would be the data gathered via the proposal form for an accelerator: Dark Sky Rangers. You can find a more detailed description of this example on Annex IV.

#	Question	Answer	Score /Total Question	Score /100
Page 1: **OSOS Accelerators** Form to know the specs of the potential OSOS Accelerator activities. The goal of this form is to be public, so that anyone interested can fill it out and can describe your activity in detail. With this data, we will be able to evaluate all activities and choose the most suitable ones to be part of the OSOS Accelerators.				
0	Email address	nuno.gomes@nuclio.pt		
1	Name of the activity	Dark Skies Rangers		
2	Description	The international project Dark Skies Rangers aims to combat the problem of light pollution by raising awareness among the educational community and local authorities to change lighting systems and preserve the night sky.	8/9	

		Light pollution is caused by outdoor lighting that light up upwards and/or sideways, making the night sky brighter, wasting energy and money, contributing to climate change, affecting living things and people's quality of life, and preventing astronomical observations. More than 100 000 measurements have been contributed from people in 115 countries during the campaigns each winter/spring over the last nine years, making Dark Skies Rangers the most successful light pollution awareness campaign to date!		
3	Country in which the activity has been designed or carried out	Portugal		
4	Age of the students involved	6-7, 8-9, 10-11, 12-13, 14-15, 16-17	6/6	5
5	Do you have a URL with more information about the activity?	http://dsr.nuclio.pt/		
6	Are the communities around the school involved in this activity?	Yes	1/1	10
7	If "Yes", specify which groups of people from the community have participated	General citizens-scientists, parents, students.		
8	Topics Covered	Mathematics, Science, Citizenship, Design and technology, Geography, Physical education	6/10	6
9	What is needed for a school to perform this activity?	Star charts, quality lighting teaching kit, luxmeter, Internet, Stellarium (free astronomical software), activities.	3/5 ((1€, 3€] /student)	6
10	Is this activity already implemented or only designed? Is it a new idea?	Already implemented	5/5	5
11	What is your motivation for this activity?	The need to fight light pollution, decreasing costs with lighting and to give back the night sky to the populations.	9/9	
Page 2: **OSOS Activity Specifications** OSOS Activities should meet certain requirements. Check below how you think your activity proposal meets the following criteria				
12	[1] Is the activity PLACED?	4	4/5	6
13	Explain your PLACED answer	The activity is placed in local streets and the sky, both of which the students are able to identify and try to connect.	5/5	
14	[2] Is the activity PURPOSEFUL?	5	5/5	7.5
15	Explain your PURPOSEFUL answer	Yes, it is, because the students are invited to solve the light pollution problem, by measuring the illuminance of the sky and proposing alternative designs for outdoor lamps and lighting.	5/5	
16	[3] Is the activity PASSION-LED?	5	5/5	7.5
17	Explain your PASSION-LED answer	Yes, since both students and teachers can apply concepts learnt/taught at school (specially in the framework of Physics, Mathematics and Biology) in order to solve the problem of light pollution.	5/5	

18	[4] Is the activity PERVASIVE?	5	5/5	7.5
19	Explain your PERVASIVE answer	Yes, it is, since it engages students, parents, teachers and policy makers in fighting light pollution, a problem which affects all the community. In order to find a solution, the students have to use several resources and to put into practice physical and mathematical concepts they have learnt at school.	5/5	
20	Do you have any extra comments?			
Page 3: **Responsible Research and Innovation** RRI (Responsible Research and Innovation) is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. You can find more information on the website https://www.rri-tools.eu/ Check below how you think your activity proposal meets the following criteria.				
21	[1] Governance	5	5/5	5
22	Governance - detailed answer	The project involves collaboration mainly with local governments, in order to change the shape of outdoor lights.	5/5	
23	[2] Engagement	5	5/5	5
24	Engagement - detailed answer	The project is based on a participatory model, were the involved stakeholders all share clear roles and responsibilities. Students have to perform measurements of the sky illuminance with the help of their parents and teachers; parents and teachers have to help students to present their results to local governments; the latter have to implement measures in order to reduce light pollution in their communities.	5/5	
25	[3] Gender equality	5	5/5	5
26	Gender equality - detailed answer	The activity is inclusive and open to all genders, since all tasks can be equally carried out by both genders.	4/5	
27	[4] Education for responsible citizenship	5	5/5	5
28	Education for responsible citizenship - detailed answer	The activity prepare students to become more responsible citizens, since it makes them aware of the problematic of light pollution, and engages them in actions to fight it, to reduce community costs, to improve quality of living for both humans and animals. It also empowers students with 21st century skills, such as collaboration, critical thinking, communication and creativity.	5/5	
29	[5] Ethics	5	5/5	5
30	Ethics - detailed answer	The activity bring out ethical dimensions of science, such as environmental principles (awareness for the light pollution problematic and waste of natural resources), decisions regarding public spaces (better outdoor lighting), respect for other people and animals.	5/5	
31	[6] Open Access	5	5/5	5
32	Open Access - detailed answer	The activity materials are all posted online and they are freely accessible by the public via the official website of the project.	5/5	
33	Do you have any extra comments?			
Page 4: **Contact information**				
34	Your name	Nuno Gomes		
35	Your role in education	Other: Project manager		
36	The organization you work for/with	NUCLIO		

37	Describe the organization	NUCLIO - Núcleo Interativo de Astronomia - is a non-profit association whose main goals are the dissemination and teaching of science. In particular, NUCLIO uses Astronomy as a tool to foster the will to discover science and its importance to the society, and to make people aware of the world that surrounds them. NUCLIO focus on teacher training, production of contents, the implementation of Inquiry-based Learning in the classroom, and in promoting scientific literacy. Consisting both of a panel of specialists in several areas of science and educators with extensive field experience, NUCLIO brings together in one single association an unparalleled ability to deliver science innovation to all interested people.	9/9	
38	Anything else?			

Below, summarised the scores obtained by the Dark Sky Rangers for each assessment tool: quantitative and qualitative:

3.5.1.1 Quantitative assessment

# item	Question	Score obtained	Over 100
4	Age	6/6	5/5
6	Community	1/1	10/10
8	Topics	6/10	6/10
9	Resources needed	3/5 (average price)	6/10
10	Implemented or idea	5/5	5/5
12, 14, 16, 18	Four P's	20/20	30/30
21, 23, 25, 27, 29, 31	RRI Pillars	30/30	30/30
		TOTAL:	**92/100**

3.5.1.2 Qualitative assessment

#2 Description	**Don't know(s)**	**DON'T AGREE AT ALL 0**	**DON'T AGREE MUCH 1**	**AGREE A LOT 2**	**TOTALLY AGREE 3**
Quality and realization				**X**	
Alignment with OSOS					**X**
Objectives					**X**
SUBTOTAL	8 /9				
#11 Motivation	**Don't know(s)**	**DON'T AGREE AT ALL 0**	**DON'T AGREE MUCH 1**	**AGREE A LOT 2**	**TOTALLY AGREE 3**
Reason					**X**
Solving problems					**X**
Innovation					**X**
SUBTOTAL	9 /9				
4 Ps and RRI Pillars	***Strongly disagree 1***	***2***	***3***	***4***	***Strongly agree 5***

PLACED (#13 and #20)					**X**
PURPOSEFUL (#15 and #20)					**X**
PASSION-LED (#17 and #20)					**X**
PERVASIVE (#19 and #20)					**X**
GOVERNANCE (#22 and #33)					**X**
ENGAGEMENT (#24 and #33)					**X**
GENDER EQUALITY (#26 and #33)				**X**	
RESP. CITIZENSHIP (#28 and #33)					**X**
ETHICS (#30 and #33)					**X**
OPEN ACCESS (#32 and #33)					**X**
SUBTOTAL	49 /50				
#37 Description of the organisation	**Don't know(s)**	**DON'T AGREE AT ALL 0**	**DON'T AGREE MUCH 1**	**AGREE A LOT 2**	**TOTALLY AGREE 3**
Educational vocation					**X**
Alignment with OSOS					**X**
Experience in research					**X**
SUBTOTAL	9 /9				
TOTAL	**75 /77 = 97.40 /100**				

3.5.1.3 Final assessment

Final assessment	Score /100	Weight	Weighted total
Quantitative assessment	92.00	60%	55.20
Qualitative assessment	97.40	40%	38.96
TOTAL FINAL ASSESSMENT			**94.16**

3.5.2 Example 2: Schools Study Earthquakes

Below, another example of an activity sent as an OSOS Accelerator proposal. You can find more details of this example on Annex IV:

#	Question	Answer	Score /Total Question	Score /100
Page 1: **OSOS Accelerators** Form to know the specs of the potential OSOS Accelerator activities. The goal of this form is to be public, so that anyone interested can fill it out and can describe your activity in detail. With this data, we will be able to evaluate all activities and choose the most suitable ones to be part of the OSOS Accelerators.				
0	Email address	sotiriou@ea.gr		
1	Name of the activity	Schools Study Earthquakes		
2	Description	The specific project focuses on the study of a physical phenomenon with great societal impact and proposes pedagogical practices based on inquiry-based methods that are more effective in science education. The objective of this combination is on one hand to increase children's and student's interest in science, on how science is made and how it affects everyday life, and on the other to stimulate teacher motivation on up-taking innovative teaching methods, subjects and practices to enrich and renew the science curriculum. The key is to provide increased opportunities for cooperation and collaboration between schools across European countries (mainly countries of the European South that experiencing seismic activity) and encourage relationships between stakeholders of both formal and informal education by establishing a network of schools that will study real data, do real analysis of real seismic activity in real time and will present their results to their communities. The specific project engages students in employing real-problem solving skills, handling and studying situations, and participating in meaningful and motivating science inquiry activities. The RRI component of the project lies in the fact that students deal with real seismic data that they have acquired themselves while they have to communicate their findings to the local communities. In countries like Greece, Italy and Bulgaria the phenomenon is rather common. Surveys in the field demonstrate that the general public is not well informed on the necessary measures that have to be applied to minimize the impact of the natural phenomenon. A complicated geophysical phenomenon like the earthquake is possible to be studied in the classroom with the use of a simple instrument and results can be obtained with the combination of data from the collaborating schools. The aim of the activity is to create a network of OSOS schools (Hubs and connected schools) that will be active in citizen seismology.	9/9	
3	Country in which the activity has been designed or carried out	Greece, Bulgaria, Italy – It could be expanded to Turkey, Cyprus, Romania, France		
4	Age of the students involved	14-15, 16-17	2/6	1.67/5
5	Do you have a URL with more information about the activity?	http://sse-project.eu/		
6	Are the communities around the school involved in this activity?	Yes	1/1	10/10
7	If "Yes", specify which groups of people from the community have participated	National Observatory of Athens, Greece Citta de la Scienza, Italy Ministry of Education, Bulgaria Ministry of Education, Greece		

8	Topics Covered	Mathematics, Science, Citizenship, Computing, Design and technology, Geography, History, Foreign languages, Music	8.5/10	8.5/10
9	What is needed for a school to perform this activity?	For the school Hub the following equipment is necessary • A seismometer (TC1 Seismometer or an open source seismometer kit) • A computer (with internet connection) that will be connected to the seismometer • For the school Hub and the other connected schools the following software is necessary • Earthquake Data Processing Software like Arduino, AmaSeis or Winquake	2/5	4/10
10	Is this activity already implemented or only designed? Is it a new idea?	Already implemented	5/5	5/5
11	What is your motivation for this activity?	The activities of this project focus on the study in the reality of classroom practice of a physical phenomenon with great societal impact and proposes pedagogical practices based on inquiry-based methods that are more effective in science education. Furthermore, the students become active scientists and are being guided to take entrepreneurial steps in their scientific endeavours by creating services for the real problems of the local communities.	9/9	
Page 2: **OSOS Activity Specifications** OSOS Activities should meet certain requirements. Check below how you think your activity proposal meets the following criteria				
12	[1] Is the activity PLACED?	5	5/5	7.5/7.5
13	Explain your PLACED answer	The activity is strongly placed as it focuses on the study in the reality of classroom practice of a physical phenomenon with great societal impact. Seismology is fundamental for understanding our dynamic planet, as it plays a vital role in monitoring both human-made and natural seismogenic events. Appreciating and understanding seismology's scientific and societal relevance requires knowledge of geology and physics, often coupled with elements of civil engineering, environmental sciences, official state policy, geography and geo-engineering as well as other scientific disciplines. Seismology is thus an engaging and quantitative science exhibiting a number of inherent links to wider areas of science but also to society.	5/5	
14	[2] Is the activity PURPOSEFUL?	5	5/5	7.5/7.5
15	Explain your PURPOSEFUL answer	Seismology in school education can promote scientific literacy at all levels but its benefits go far wider than simply providing scientific knowledge about this everyday natural phenomenon. It provides the basis for informed action to protect lives and property on local, regional, and national levels. As such, the SSE project not only contributes to providing high-level educational material to teachers and their students but highlights also aspects of civil protection, citizenship, civil responsibility and cooperation.	5/5	
16	[3] Is the activity PASSION-LED?	5	5/5	7.5/7.5
17	Explain your PASSION-LED answer	The large societal impact of earthquakes in some of the participating countries (Greece, Italy and Bulgaria) along with the increased awareness of the participating students and teachers significantly contributes to meaningful collaboration between the participating schools in both national and international levels.	5/5	
18	[4] Is the activity PERVASIVE?	5	5/5	7.5/7.5
19	Explain your PERVASIVE answer	Apart from the proposed benefits in terms of promoting scientific literacy, civil responsibility and transnational cooperation, the project assists students in developing skills in problem analysis, solution formulation and entrepreneurship. In order to achieve this, students need to be exposed to real-world problems so that they learn to develop, evaluate and select solutions. To do that they will collaborate with researchers and other stakeholders from the local communities (e.g. civil protection agencies, volunteers who are supporting the local authorities	5/5	

		in cases of large earthquakes). The implementation of the project requires the close cooperation between the schools (both Hubs and connected schools) to make sure that the data from the seismic activity are always available for all.		
20	Do you have any extra comments?			
Page 3: **Responsible Research and Innovation** RRI (Responsible Research and Innovation) is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. You can find more information on the website https://www.rri-tools.eu/ Check below how you think your activity proposal meets the following criteria.				
21	[1] Governance	5	5/5	5/5
22	Governance - detailed answer	Research centres, science museums, universities and a network of schools participated in the activities. Students are exposed to real-world problems so that they learn to develop, evaluate and select solutions. To do that they will collaborate with researchers and other stakeholders from the local communities (e.g. civil protection agencies, volunteers who are supporting the local authorities in cases of large earthquakes). The implementation of the project requires also the close cooperation between the schools (both Hubs and connected schools) to make sure that the data from the seismic activity are always available for all. Students have to act as scientists who provide and share information.	5/5	
23	[2] Engagement	5	5/5	5/5
24	Engagement - detailed answer	The project provides a unique opportunity to demonstrate the potential of citizen seismology. Students collect and analyze data, share them with other students, interact with scientists and local stakeholders to provide optimized solutions and to inform their communities. The role of the Hub is very crucial to coordinate the overall activity.	5/5	
25	[3] Gender equality	5	5/5	5/5
26	Gender equality - detailed answer	As the project is focusing to a phenomenon that anyone is experiencing it is open to all students. It offers the opportunity to girls to introduce their ideas in the whole framework of the project. As it includes numerous phases the project could involve students in different activities (construction of the seismometer, operation of the seismometer, data acquisition and analysis, presentation of results, interaction with external stakeholders, communication and reporting, cooperation with other schools) offering numerous opportunities for the inclusion of students with different interests and skills.	4/5	
27	[4] Education for responsible citizenship	5	5/5	5/5
28	Education for responsible citizenship - detailed answer	The activities of the project promote scientific literacy, civil responsibility and transnational cooperation, but also problem analysis, solution formulation and entrepreneurship. Students are communication their results with their communities and at the same time are providing guidance for informed policy decisions and strategies related to civil protection. According to the European Volunteer Centre, volunteerism is a means of social integration and fulfilment achievement that contributes to the social cohesion by creating bonds of trust and solidarity while investing in the social capital. It is one of the ways with which people coming from all the socio-economic classes and ages can contribute to the positive development and change, it can be used as a tool promoting active and responsible social participation and the individual's social networks, while it comprises a major power able to reinforce the local development and Civil Society.	5/5	
29	[5] Ethics	5	5/5	5/5
30	Ethics - detailed answer	Students were guided through the ethical dimensions of science like social and environmental principles, respect and ethical use of data. Additionally, such a project that it is closely connected with natural disasters promotes the importance of the human life and demonstrates the value of volunteerism. It is volunteerism that acquires significant value by underlying the need for social	5/5	

		solidarity and unselfish offer in the field of civil protection, where the immediate aid offer during the occurrence of such phenomena is extremely urgent.		
31	[6] Open Access	5	5/5	5/5
32	Open Access - detailed answer	Open Access is very critical for the realization of the project as the school network has to share data in order the service to be operational. If the data of the school seismometers are not available to other schools then the project activities cannot be implemented.	5/5	
33	Do you have any extra comments?			
Page 4: **Contact information**				
34	Your name	Sofoklis Sotiriou		
35	Your role in education	Educator (formal education)		
36	The organization you work for/with	Ellinogermaniki Agogi, Pallini, Greece		
37	Describe the organization	Ellinogermaniki Agogi (EA) is an educational organization of private law, officially recognized by the state. Established in 1995, the Research and Development Department of EA provides the test bed for research applications for the design, development and implementation of the research activities in education. The R&D Department acts therefore as an interface between the pedagogical research, the technological innovation and the school community. It focuses on the design, implementation and support of pedagogical and technological innovations in educational practice, both through internal research as well as through collaborations with numerous educational, research and commercial institutions in Europe and the world. EA is an institutional member of EDEN (European Distance Education Network), of STEDE (Science Teacher Education Development in Europe) and of ECSITE (European Network of Science Centres and Museums) network, as well as a partner school of the German Schools-Excellence Network. The work of the R&D Department which currently employs 15 full time researchers (7 PhD level, 8 MSc) focuses also on the following areas: a) Development of methodologies and empirical research to investigate processes of learning and knowledge acquisition in various subject matter areas (physics, mathematics, biology, history, etc.); b) Collaboration with computer science departments and artificial intelligence labs for the development of computational models and AI learning systems; c) Design and development of educational learning scenarios based on the concept of storytelling, which has been developed and tested in various EU projects and applied within European educational communities; d) Cooperation and collaboration with Universities, research centers, museums and private companies for the development and testing of educational material and software. e) Design of technology-supported learning environments.	9/9	
38	Anything else?			

Following, its corresponding assessment and the scores obtained by the Schools Study Earthquakes proposal for each element subject to assessment:

3.5.2.1 Quantitative assessment

# item	Question	Points obtained	Over 100
4	Age	2/6	1,67/5
6	Community	1/1	10/10
8	Topics	8.5/10	8.5/10
9	Resources needed	2/5	4/10
10	Implemented or idea	5/5	5/5
12, 14, 16, 18	Four P's	20/20	30/30
21, 23, 25, 27, 29, 31	RRI Pillars	30/30	30/30
		TOTAL:	**89.17/100**

3.5.2.2 Qualitative assessment

#2 Description	**Don't know(s)**	**DON'T AGREE AT ALL 0**	**DON'T AGREE MUCH 1**	**AGREE A LOT 2**	**TOTALLY AGREE 3**
Quality and realization					**X**
Alignment with OSOS					**X**
Objectives					**X**
SUBTOTAL	9 /9				
#11 Motivation	**Don't know(s)**	**DON'T AGREE AT ALL 0**	**DON'T AGREE MUCH 1**	**AGREE A LOT 2**	**TOTALLY AGREE 3**
Reason					**X**
Solving problems					**X**
Innovation					**X**
SUBTOTAL	9/9				
4 Ps and RRI Pillars	***Strongly disagree 1***	***2***	***3***	***4***	***Strongly agree 5***
PLACED (#13 and #20)					**X**
PURPOSEFUL (#15 and #20)					**X**
PASSION-LED (#17 and #20)					**X**

PERVASIVE (#19 and #20)					**X**
GOVERNANCE (#22 and #33)					**X**
ENGAGEMENT (#24 and #33)					**X**
GENDER EQUALITY (#26 and #33)				**X**	
RESP. CITIZENSHIP (#28 and #33)					**X**
ETHICS (#30 and #33)					**X**
OPEN ACCESS (#32 and #33)					**X**
SUBTOTAL	49/50				
#37 Description of the organisation	**Don't know(s)**	**DON'T AGREE AT ALL 0**	**DON'T AGREE MUCH 1**	**AGREE A LOT 2**	**TOTALLY AGREE 3**
Educational vocation					**X**
Alignment with OSOS					**X**
Experience in research					**X**
SUBTOTAL	9 /9				
TOTAL	**76 /77 = 98.70 /100**				

3.5.2.3 Final assessment:

Final assessment	Score /100	Weight	Weighted total
Quantitative assessment	89.17	60%	53.50
Qualitative assessment	98.70	40%	39.48
TOTAL FINAL ASSESSMENT			**92.98**

4 The Accelerator Template

The last work phase, after identifying and selecting the Open Schooling Accelerators, involves publishing and disseminating those proposals among the schools that are going to form an active part of the OSOS pilot phases (phase 1: 100 schools; phase 2: 1000 schools), as described in Section 3.4. Schools will need to choose one or more accelerators in order to implement them, either by putting the accelerator into practice with few or no changes, or by basing on them to ensure they are the driving force behind the inspiration for a new activity adapted to their context.

We have designed a template to collect homogeneous information about each accelerator. The creators of the proposals will complete this template, with the support of the National Coordinators from each country where necessary. Much of this data can be obtained from the proposal submitted for evaluation, but the details on how to implement it in the classroom is now required in this second phase before publishing.

We will use the BSCW collaborative platform to share the templates among project members. Following we describe the objectives and a description of the details included.

4.1 Objectives

The main objective of the Public Accelerator Template is to serve as the principal means for obtaining essential information about the activity, including both its general characteristics and some more specific details.

The template has been developed to ensure that it is not excessively long and to thus make it easier to complete. Moreover, over half the information (14 fields out of 24, namely 58.33%) is obtained from the information gathered via mandatory fields on the online form required to send accelerator proposals (described in Section 3.2). Thus, it should not take more than 15 or 20 minutes to complete the methodological details asked for publishing.

Once the Public Accelerator Template has been duly completed, we will then have a single document in which the whole activity is documented in sufficient detail for teaching staff and students to be able to gain a full insight into it, while at the same time allowing the school freedom to adapt it to their needs and characteristics. Accelerators constitute a starting point, a form of inspiration that schools may personalise and adapt, thus making them the driving forces behind innovation and inspiration set out as an objective within the OSOS project.

4.2 Description of fields

This section provides details of the different fields included in the Public Accelerator Template,

*Note: fields with title in **bold** are those that derive from the information supplied on the online form.*

# FIELD	NAME	DESCRIPTION
Page 1 – General information		
1	**Logo of the Project**	Logo or an image to illustrate the project
2	**Name of the activity**	Title of the activity
3	QUESTION or PROBLEM THIS ACTIVITY AIMS TO TACKLE	A short question this activity wants to tackle with its implementation.
4	**Description**	A long description of the activity.

5	**URL to find more information**	One (or more) URLs where further information, details, resources, etc. about the project can be found.
6	**Contact Person**	Contact person in case further information is required.
7	**Organization in charge**	Details about the entity that has proposed the activity. Includes fields such as name and postal address, email address, website and logo.
8	**Creation date of this document**	Date of most recent modification of this document.
Page 2. Detailed information of the Accelerator		
9	**Name**	Name of the activity (the same as in field #2)
10	Keywords	The key words that best define and represent the activity (between 5 and 10 words).
11	**Language**	The language or languages in which the activity is available.
12	Learning Objectives	The learning objectives that are sought by developing this activity.
13	**Age of students involved**	Age of target students of this activity.
14	**Subjects Domain**	Raw materials involved in this activity, chosen from among a selection (ICT, Mathematics, Science, Technology and Engineering.) proposed by the ISE portal.
15	**Available Partnership Opportunities**	List of educational community agents who may participate in the activity. Shown in the form of a table and includes "Stakeholder type" and "Description of its mission" columns.
16	**Country in which the activity has been designed or carried out**	Country or countries in which the activity has been implemented.
17	**Resources needed**	Resources needed to set the activity in motion, including individuals and profiles, materials (type and amount) and any other resources. An estimate of the cost of all these resources should also be provided if this is deemed representative
18	Others/Notes	A blank field where complementary information can be added.
Page 3. Planning of the Accelerator (a table containing the following columns and empty rows, so that the creator must write the info on each row per each session)		
19	Session number	Session number of the activity (starting with 1 until the last one).
20	Duration	Duration of the specific activity (one per session).
21	Description	Description of the session (one per session)
22	Resources needed	Resources needed to implement the respective session (one per session).
23	Location	Location where the session is conducted (one per session).

4.3 Example of completed Accelerator Template

On this section you can find an example of an Accelerator Template with a real activity, following the guidelines indicated above.

DSR Portugal
Dark Skies Rangers

NAME OF THE ACTIVITY:

DARK SKIES RANGERS

QUESTION or PROBLEM THIS ACTIVITY AIMS TO TACKLE

How can schools fight light pollution?

DESCRIPTION

The international project and accelerator **Dark Skies Rangers** (**DSR**) aims to create a network of OSOS schools that will **combat the problem of light pollution**, by raising awareness among the educational community and local authorities to change lighting systems and preserve the night sky.

Our planet, when seen from above during night time, exhibits a large number of lit areas. For example, we can easily identify the areas of greater population density in Iberian Peninsula when it is seen from the International Space Station during night time (Figure 1). Those light patches also identify areas of great **light pollution**.

Light pollution is caused by outdoor lighting that light up upwards and/or sideways (Figure 2), making the night sky brighter, wasting energy and money, contributing to climate change, affecting wildlife, ecosystems and people's quality of life, and preventing astronomical observations.

This accelerator focus on the problematic of light pollution, fighting bad quality outdoor lighting and wasting of energy, decreasing public costs with lighting, while at the same time promoting an increase on the quality of life both for humans and the wildlife, increasing the security on the local communities and give the night sky back to the populations. These goals will allow to increase the attention to science by both students and local community, to stimulate teachers to adopt innovative teaching practices, based on Inquiry, which have been proven to be highly effective in science education, to generate and increase civic awareness, and to stimulate a proactive and responsible participation in the decisions of the community. DSR will, therefore, promote the enrichment and renewal of the science curriculum and others subjects, such as civic classes and philosophy.

URL TO FIND MORE INFORMATION

http://dsr.nuclio.pt/

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Open Schools for Open Societies

OSOS Accelerator No. #17
DARK SKIES RANGERS
NUCLIO – Núcleo Interactivo de Astronomia
30/11/2017

1. DETAILED INFORMATION OF THE ACCELERATOR

NAME	**DARK SKIES RANGERS**	
KEYWORDS	Light pollution, outdoor lighting, night sky, energy resources, taxes, civic awareness, wildlife, security, quality of living, energy efficiency, health	
LANGUAGE	Portuguese, English (the activity can be performed in any language).	
LEARNING OBJECTIVES	• Realise that the night sky is not always accessible for observations even when there are no clouds; • Understand the concepts of intensity of light and light pollution; • Realise most of the outdoor lighting systems are not properly designed, producing bad lighting; • Understand the concept of acceptable and unacceptable outdoor lighting; • Understand the impact of outdoor lighting on energy resources, on public costs and on the local and national economy, on security, on the quality of living of people and wildlife, and on astronomical observations; • Investigate alternative outdoor lighting systems; • Increase civic awareness.	
AGE OF STUDENTS INVOLVED		All ages
SUBJECTS DOMAIN	Mathematics, Science (Physics and Biology), ICT (software on Astronomy and Optics), Technology, Engineering and Architecture (systems of outdoor lighting, illumination of public buildings)	
AVAILABLE PARTNERSHIP OPPORTUNITIES	General citizens-scientist	• Identify some constellations and their stars, measure the apparent brightnesses of the latter and compare them to reference values; • Identify examples of good and bad outdoor lighting, measuring the illuminance of the neighbourhood and of special spots; • Get appointments with policy makers (president of Town Hall, Mayor, etc.); • Analyse the impact of light pollution in the local flora and fauna. • Awareness about outdoor and indoor illumination malpractices.
	Parents	• Assist their children in the outdoor activities; • Assist their children in getting meetings with policy makers and other relevant stakeholders.
	Teachers	• Provide students with the necessary background and information, and help them preparing and mastering the tools necessary to carry out the outdoor activities; • Guide students preparing the interviews with policy makers and other stakeholders.
	Industry	• Develop and advertise more efficient outdoor lighting systems; • Create awareness of the impact of existing malpractices.
COUNTRY IN WHICH THE ACTIVITY HAS BEEN DESIGNED OR CARRIED OUT		Designed in the framework of a partnership between Portugal and USA (can be carried out in any country where light pollution has been identified or to prevent its appearance).
RESOURCES NEEDED	Star charts, quality lighting teaching kit, luxmeter, Internet, Stellarium (free astronomical software), educational activities to be carried out in the class and/or outside (see links in the table "Planning of the Accelerator" below).	
PUBLICLY AVAILABLE	YES	
OTHERS/NOTES		

2. PLANNING OF THE ACCELERATOR:

# Session	Duration	Description	Resources needed	Location
1	90m	• Teacher awakes the curiosity of students for the theme of light pollution, showing images of places with and without light pollution (Earth seen from above during night, neighbourhoods, cities, night sky, etc.): https://youtu.be/8dc582rOuck, https://www.lightpollutionmap.info/ • Teacher introduces the concept of light pollution and invites students to search for its impact in our lives: wasting of energy, increasing of public costs with lighting, quality of life for both humans and wildlife, security, and observation of the night sky; • Students must inspect street lights on their way home and around their neighbourhoods, and check if they properly light the path or not; • If possible, students should use a luxmeter to measure the amount of light around their houses.	• Computers with Internet • Paper to write on • Star charts • Luxmeter • Internet resources: Globe at Night, GDS portal	In the classroom and in the streets
2	50m	• Students discuss in the class their findings about outdoor lights which they observed on the previous day, when going home and in their neighbourhoods; • Students search for acceptable and unacceptable lighting fixtures examples; • Students use a Google map to identify the location of "good" and "bad" lighting examples; • Students search and learn about different types of light; • Students search and learn about the colour of light and its importance for proper lighting; • Students search for examples of luminaires that minimize glare, reduce light trespass, and don't pollute the night sky; • Students observe the impact of different types of outdoor lighting systems on the number of visible stars observed with the naked eye, using the Need-less Interactive - Light Pollution Simulator web app.	• Computers with Internet • Paper and pen • Websites to visit: International Dark-sky Association, Need-less	In the classroom
3	50m	• Students learn how to use Stellarium; • Students learn about the brightness of the stars and the apparent magnitude system; • Students simulate the night sky for that day at the place where they live, to an apparent magnitude limit of about 6; • Students will compare their simulations with the actual sky that night, at their neighbourhoods.	• Computers with Internet and Stellarium software installed • Paper and pen • Websites to visit: Globe at Night, International Dark-sky Association	In the classroom
4	1h40m	• Students prepare a written communication and/or a video to present their findings to the local policy makers and other stakeholders, and to suggest improvements in the outdoor lighting systems adopted in their neighbourhoods and cities.	• Computer • Paper and pen • Video: Francisco Pires, winner of the DSR competition in 2015	In the classroom
5	1h	• Students will attempt to book a meeting with their Town Hall president and/or the Mayor in order to present the results of their study; • Students meet policy makers and other stakeholders, and present their findings.	(nothing)	In the Town Hall and/or City Council
6	50m	• Students will share their findings in social media; • Students present their findings to their school and local community.	• Computer with access to the Internet	In the classroom, in the school, at local coffee shops
7	60m	• Teachers and students will promote Science Café sessions in the local community in order to promote awareness and discussion about the theme of light pollution. In these sessions, students are the scientists.	• Computer	In the local coffee shop
8	A morning, an afternoon	• Students find people with professions related to the theme: scientists (physicists, biologists, etc.), medical doctors, architects, civil engineers, interior designers, and so on and so forth; • Students engage in collaborations with local research centres.	(nothing)	Anywhere, at a local research centre
9	A full day	• Teachers and students organise an exhibition with their findings, promoting awareness to the problematic of light pollution in local commercial areas.	(nothing)	In the local commercial area

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3. OTHER SUGGESTIONS

FIGURE 1: IBERIAN PENINSULA AS SEEN FROM SPACE (SOURCE: NASA).

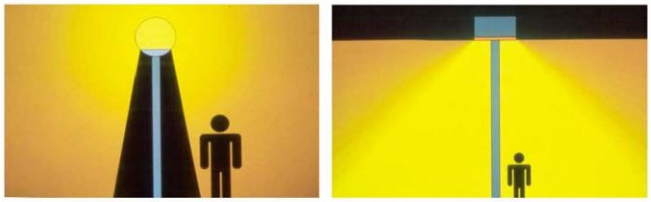

FIGURE 2: SCHEMATICS OF A "BAD" OUTDOOR LAMP (LEFT) AND OF A "BETTER" DESIGN (RIGHT). ON THE LEFT, DUE TO THE SPHERICAL SHAPE OF THE LAMP WITHOUT ANY REFLECTOR, LIGHT IS SENT UPWARDS, ORIGINATING LIGHT POLLUTION; ON THE RIGHT, LAMP INCLUDES A REFLECTOR ON TOP OF IT, MAKING IT ENERGETICALLY MORE EFFICIENT, THUS CAUSING LESS LIGHT POLLUTION.

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5 How to improve an activity so as to transform it into an Accelerator

Open Schooling Accelerators are the best practices of the OSOS project – innovation accelerators in all those Open Schools that form part of the practical implementation of this project. Open Schooling Accelerators are the initiatives and projects that are most aligned and deemed best for speeding up innovation in all schools that form part of the project.

National Coordinators are responsible of providing the support needed to the different stakeholders from the milieu to help them improve their ideas and proposals before sending them, either via the form or in their final format via the template, to ensure that the result is of very high quality and aligned with the OSOS philosophy.

5.1 An Open Schooling Accelerator is a proposal for schools

Under no circumstances should an accelerator be understood as being an imposition on the part of the OSOS project on the schools that pursue the different practical phases. On the contrary, accelerators are proposals from which inspiration can be drawn – top-quality ideas, the aim of which is to serve as a driving force behind change for schools.

An accelerator may be implemented as proposed by the individual or organisation behind it, if the school so wishes. However, it is highly advisable to urge the school to modify it so as to adapt it to their interests, needs and specific features of their community.

To do so, when an activity is proposed as an accelerator, this does not need to be either closed or limited – there should be a margin for enabling schools to adapt it to their respective environments. There are no two schools the same and, therefore, how it is pursued and implemented will probably vary even though more than one school may choose the same basic accelerator.

Any activity submitted for accelerator must enable us to establish a general overview of its learning objectives, methodological proposal, agents involved and resources needed to set it in motion. It should give a general picture with sufficient detail to enable teaching staff and students to be familiarise themselves with the general ideas suggested to us by the creator of the proposal when reading the documentation.

5.2 The importance of activity characteristics (4 Ps and RRI pillars)

In previous deliverables, attention has been drawn to the fact that an activity in OSOS features a series of characteristics that define the OSOS approach: we are referring to the four Ps and the RRI Pillars.

Their presence has a direct impact on the assessment procedure, and their value in terms of the global rating is very high (60% of quantitative assessment, representing 42% of the final assessment).

That is why it is important for National Coordinators to provide support to creators of the activity so that they may improve on these aspects.

5.3 The role of community stakeholders

The OSOS project wants to open up schools to the community around them: families, industry, associations and public administrative bodies, etc. To do so, if there is no action with the milieu in the activities proposed, then we will not be properly taking into consideration one of the basic principles of the project.

Interaction between the different agents from the milieu in activities that form part of the practical phase is a key aspect – and an essential one – in Open Schooling Accelerators. Without these agents from the milieu, we are unable to take any steps under any circumstances to ensure an activity proposal forms part of OSOS.

That is why, in the event that an activity proposal should happen not to involve a stakeholder, we will work with the creator on looking for the way of involving stakeholders from the community to make it

an open schooling project. National Coordinators will provide the relevant support to ensure this is the case. Below we list the types of stakeholder that may be included in an OSOS activity:

- Families: fathers, mothers, grandfathers, grandmothers, etc.
- Local communities, museums, knowledge centres and associations.
- Businesses and/or professionals from industry.
- Research centres and/or universities and their professionals.
- Any type of local, regional or national government, or their employees.
- Civic, cultural or other types of association.

This may act as a reference point for ascertaining whether there are other stakeholders whose inclusion in the activity may propose, and thus make it more complete and versatile in terms of its proposal as an OSOS Accelerator.

5.4 Updating and improving the activity in the future

The activities proposed are neither closed nor static, and may vary and improve over time. OSOS is a project developed between 2017 and 2020, and will last beyond that time thanks to the results obtained and an elaborate sustainability plan. It is therefore very likely that both the proposal and the accelerators will undergo changes, and it is even possible that an activity that has been confirmed as an accelerator may evolve throughout the project and be both updated and improve. Notification will be provided about all this and it will be administered via the ODS platform.

6 Conclusions and future steps

In this deliverable, we have described the working method and tools to be used when compiling activities being considered for Open Schooling Accelerators, to assessed them and, lastly, publish them for use by the educational community.

An Open Schooling Accelerator is one of the key elements in the OSOS project - these are activities that speed up innovation and are responsible for inspiring schools in the activities to be pursued during the implementation phases. It is of critical importance that we correctly choose accelerators to ensure that the piloting phase is completed in line with our expectations.

To undertake this process involving the gathering together of OSOS good practices, we have taken into account very important aspects in the project such a geographic and contextual diversity, and the heterogeneous nature of possible proposals, etc. To this end, a robust, universal yet at the same time concise method has been put forward, devised with a view to being simple to carry out and also quick both for members of the OSOS consortium (WorkPackages, National Coordinators, etc.) and for project members (schools, community stakeholders, etc.). This is a form accessible online on which the information required is completed in order to assess the proposal.

It is important throughout the project to keep the mechanisms used to gather applications and activity proposals both active and accessible, and also to assess and publish them. These mechanisms will be maintained throughout the duration of the project until its completion, with a view to incorporating new proposals on a continuous basis.

Of course, accelerators are dynamic and, as we have already mentioned, may change and evolve and be adapted in order to consider new challenges– and, in general, may be renewed so as to become enriched. WP4 will continue to do this whenever required, always with a view to improving activities to ensure how they may best fit into the Open School framework.

Annex I: Google Form

This Annex contains the technical reference about the online questionnaire we have used to gather the candidates to serve as Open Schooling Accelerators around Europe and beyond.

Title: We are looking for innovative, open schooling best practices around the world! OSOS, Open Schools for Open Societies

Description: OSOS, Open Schools for Open Societies project, https://www.openschools.eu/

OSOS aims at opening schools to the community around. To achieve that, we are searching for the most innovative, open schooling best practices around the world, which will serve as OSOS Accelerators of innovation.

These OSOS best practices will act as accelerators of the introduction of OSOS approach in the participating schools. They will help innovative schools to progress more and develop their innovative ideas to new localized projects that could provide solutions for the schools and the communities that surrounds them for bridging the gap between formal and informal learning settings and creating new opportunities for personalization at different levels (student, teacher, school).

This form collects the candidate activities, projects and initiatives to become OSOS Accelerators. If you have any questions, please write to learninglab@deusto.es

We will send you a confirmation email once you submit this form.

#	Name	Type	Possible values	Qualitative (QL) or Quantitative (QT)	Required	Description
Page 1: **OSOS Accelerators** Form to know the specs of the potential OSOS Accelerator activities. The goal of this form is to be public, so that anyone interested can fill it out and can describe your activity in detail. With this data, we will be able to evaluate all activities and choose the most suitable ones to be part of the OSOS Accelerators.						
0	Email address	Text		N/A	Y	
1	Name of the activity	Text		N/A	Y	As short as you can. But try to be descriptive, please
2	Description	Text		QL	Y	Please, outline the activity in ~200 words: the problem addressed, solution proposed, groups involved, innovation and results
3	Country in which the activity has been designed or carried out	Text		QT	Y	If more than one, separated by comma
4	Age of the students involved	Checkboxes	<5 6-7 8-9 10-11 12-13 14-15 16-17 18+ All ages	QT	Y	You can check more than one answer
5	Do you have a URL with more information about the activity?	Text		N/A		It can be a website (webpage/weblog/video channel, etc.) or a file in a cloud storage service (Dropbox, Google Drive, OneDrive, etc.)
6	Are the communities around the school involved in this activity?	Multiple choice	Yes No Other (…)	QT	Y	E.g. families, organizations like universities or research centres, informal learning centres (museums, science centres), enterprises, industries, local communities, NGO, etc.

7	If "Yes", specify which groups of people from the community have participated	Text		QT	Y	
8	Topics Covered	Checkboxes	Foreign languages Design and technology Science Mathematics Music History Geography Physical education Computing Art and design Citizenship Language and literacy Other:	QT	Y	Check the list of subjects your activity is related to:
9	What is needed for a school to perform this activity?	Text		QT	Y	Explain the necessary resources in terms of financial, human resources (profile and working hours), equipment, etc.
10	Is this activity already implemented or only designed? Is it a new idea?	Multiple choice	Already implemented Designed, but not implemented yet New idea Other:	QT	Y	
11	What is your motivation for this activity?	Text		QL		Why did you carry out it?
Page 2: **OSOS Activity Specifications** OSOS Activities should meet certain requirements. Check below how you think your activity proposal meets the following criteria						
12	[1] Is the activity PLACED?	Linear scale	Likert 1 – Strongly disagree 2 3 4 5 – Strongly agree	QT	Y	The activity is located, either physically or virtually, in a world that the student recognizes and is seeking to understand
13	Explain your PLACED answer	Text		QL		Please, explain your reasons behind your answer in no more than 1 or 2 lines of text
14	[2] Is the activity PURPOSEFUL?	Linear scale	Likert 1 – Strongly disagree 2 3 4 5 – Strongly agree	QT	Y	The activity feels authentic, it absorbs the student in actions of practical and intellectual value and fosters a sense of agency
15	Explain your PURPOSEFUL answer	Text		QL		Please, explain your reasons behind your answer in no more than 1 or 2 lines of text

16	[3] Is the activity PASSION-LED?	Linear scale	Likert 1 – Strongly disagree 2 3 4 5 – Strongly agree	QT	Y	The activity enlists the outside passions of both students and teachers, enhancing engagement by encouraging students to choose areas of interest which matter to them
17	Explain your PASSION-LED answer	Text		QL		Please, explain your reasons behind your answer in no more than 1 or 2 lines of text
18	[4] Is the activity PERVASIVE?	Linear scale	Likert 1 – Strongly disagree 2 3 4 5 – Strongly agree	QT	Y	Pervasive: The activity enables the student to continue learning outside the classroom, drawing on family members, peers, local experts, and online references as sources of research and critique.
19	Explain your PERVASIVE answer	Text		QL		Please, explain your reasons behind your answer in no more than 1 or 2 lines of text
20	Do you have any extra comments?	Text		QL		Add any comment to extend the previous answers
Page 3: **Responsible Research and Innovation** RRI (Responsible Research and Innovation) is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. You can find more information on the website https://www.rri-tools.eu/ Check below how you think your activity proposal meets the following criteria.						
21	[1] Governance	Linear scale	Likert 1 – Never 2 3 4 5 – Very frequently	QT		Educational Objectives: Experiencing excitement, interest, and motivation to learn about phenomena in the natural and physical world.
22	Governance - detailed answer			QL		Here you can add a few lines with more information about your previous answer Your answer
23	[2] Engagement	Linear scale	Likert 1 – Never 2 3 4 5 – Very frequently	QT		
24	Engagement - detailed answer	Text		QL		Here you can add a few lines with more information about your previous answer Your answer
25	[3] Gender equality	Linear scale	Likert 1 – Never 2 3 4 5 – Very frequently	QT		Is the activity inclusive and open for all genders? (men, women, others, etc.)

26	Gender equality - detailed answer	Text		QL		Here you can add a few lines with more information about your previous answer
27	[4] Education for responsible citizenship	Linear scale	Likert 1 – Never 2 3 4 5 – Very frequently	QT		Does the activity prepare students to become more responsible citizens? Does the activity empower students with 21st century skills?
28	Education for responsible citizenship - detailed answer			QL		Here you can add a few lines with more information about your previous answer
29	[5] Ethics	Linear scale	Likert 1 – Never 2 3 4 5 – Very frequently	QT		Does the activity bring out ethical dimensions of science? For example social and environmental principles, decisions regarding the public spaces, respect of the commons...
30	Ethics - detailed answer			QL		Here you can add a few lines with more information about your previous answer
31	[6] Open Access	Linear scale	Likert 1 – Never 2 3 4 5 – Very frequently	QT		Are all of the activity materials posted online, and are they freely accessible by the public?
32	Open Access - detailed answer			QL		Here you can add a few lines with more information about your previous answer
33	Do you have any extra comments?			QL		Add any comment to extend the previous answers
Page 4: **Contact information**						
34	Your name	Text		N/A		
35	Your role in education	Multiple choice	Head of school Educator (non-formal education) Educator (formal education) Student Parent Other:	N/A		
36	The organization you work for/with	Text		N/A		The name, city and country it belongs to
37	Describe the organization	Text		QL		Short introduction of the organization (~200 words)
38	Anything else?	Text		N/A		This is a textbox where you can write anything you consider we should know. We would like to know a little information about the current status of the initiative, future lines of work, guidelines of implementation or, in general, anything you consider could be interested to know about the activity.

Annex II: Qualitative assessment rubric

Table 6: Rubric to assess the qualitative items, according to question number

#2	*Description of the activity (required)*				
Indicator	**Don't know(s)** **-**	**DON'T AGREE AT ALL** **0**	**DON'T AGREE MUCH** **1**	**AGREE A LOT** **2**	**STRONGLY AGREE** **3**
Quality and realization	The text does not constitute a description of the activity.	The response is neither clear nor concise, and does not enable insight either in general or specific sections of the activity to be gained.	Enables some data to be obtained about the activity, but this is insufficient for the purpose of gaining an overall insight into the activity.	This is an elaborate description that provides numerous details both of a general and specific nature, defining the main characteristics of the activity.	This is a very complete text which enables details to be learnt about all aspects of the activity – necessary for its implementation in a classroom.
Alignment with OSOS	The text does not constitute a description of the activity.	The activity is not at all aligned with the Open Schools philosophy, nor is there any way of integrating the milieu into the activity.	The activity is not aligned with the Open Schools philosophy, although it might be able to be adapted in order to integrate the milieu into the activity.	The activity is aligned with the Open Schools philosophy, and the proposal involves at least one agent from the milieu in the activity.	The Open Schooling philosophy is one of the key points of the activity, which has been created especially to integrate agents from the milieu.
Objectives	The text does not constitute a description of the activity.	The description either fails to define certain objectives or these are unrelated to the educational context.	The objectives set out by the activity are either disparate or can be deduced from the text, but not clearly identified.	Includes a definition of the objectives which, despite being incomplete or inclusive, enable the purpose of the activity to be deduced.	There are clear, well-defined objectives in the text, and these serve an educational purpose.

#11	***Motivation (required)***				
Indicator	**Don't know(s)** **-**	**DON'T AGREE AT ALL** **0**	**DON'T AGREE MUCH** **1**	**AGREE A LOT** **2**	**STRONGLY AGREE** **3**
Reason	The text does not refer to the reason why this activity has been created and/or developed.	The activity has not been created and/or developed with a clear or specific reason in mind.	There is motivation behind the activity, but this is not expressed clearly in the text.	There is motivation behind the activity, and this is clearly expressed in the text.	There is a reason for which this activity has been developed ad-hoc.
Solving problems within the milieu	The text fails to indicate that this activity has been created and/or developed with a view to solving a problem.	This is not an activity that has been created or developed to solve a problem within the milieu.	A problem has been identified within the milieu, but this activity does not provide a complete solution.	A problem has been identified within the milieu, and this activity provides a complete solution to it.	There is a problem within the school milieu for which this activity has been specifically created or developed, providing a solution to it.
Innovation	The text does not refer to the fact that this activity has been created with a view to improving and innovating in the educational process.	The activity does not entail any improvement or innovation for the school's educational process.	It can be deduced that there is an innovation for the school, although this is not deemed a priority or is not clearly defined in the text.	This is an activity in which there is a clear vocation for innovation and improvement in terms of the educational process.	The activity has been developed with a view to its serving as an aspect of innovation and improvement in the school's educational process.

	4 P's, RRI Pillars and more comments answers				
Indicator	**Strongly disagree 1**	**2**	**3**	**4**	**Strongly agree 5**
PLACED (#13 & #20)	There is no context within which the activity has a place. There is no clear or concise information that enables the activity to be located.	Although it is not clearly defined, there are details that enable the context within which the activity is being considered to be deduced.	The context of the activity is defined with certain clarity, albeit not with the utmost detail.	The approach is based on a specific, well-defined context, whether physical or virtual.	The activity is located, either physically or virtually, in a world that the student recognises and is seeking to understand.
PURPOSEFUL (#15 & #20)	Participants remain outside the activity, showing a complete lack of interest in the issues it deals with.	There is motivation which enables participants to pursue the activity, although this may not be clear to everyone.	Participants are aware of the purpose of the activity, and a part of them gives them that sense of belonging.	Most participants in the activity feel they belong to it, and work on it with interest.	The activity feels authentic, it absorbs both the students and the stakeholders in actions of practical and intellectual value and fosters a sense of agency.
PASSION-LED (#17 & #20)	Gives rise to antagonism about the issue it deals with.	Arouses passion only among a minority of participants, this being a very small fraction of the participants involved out of the total, who feel either indifferent to it or opposed to it.	Arouses both passion and indifference, but no antagonism, among the agents involved.	The activity is liked and arouses passion among a large majority of the participants involved in it.	Arouses passion on the part of students and teachers on the one hand and agents from the milieu involved in the activity on the other.
PERVASIVE (#19 & #20)	The learning outcome obtained via the	The activity develops knowledge solely at	The student finds it difficult to continue	The student may continue learning outside the	The student continues learning outside the

	activity is either applicable solely and exclusively within the area of the classroom, or is applicable to nothing.	times and in places where it is developed, but nowhere else.	learning outside the classroom, as this depends on factors that may prevent them from doing so.	classroom and obtain benefits, although this is not a priority part of the activity.	classroom, sharing the improvements gained in knowledge with other members of society (family, friends, local experts, etc.) and progressing still further.
GOVERNANCE (#22 & #33)	No collaboration with the school on the part of agents from the milieu is included.	Which agents from the milieu are to be involved in the activity is not clearly defined, although their existence may be deduced.	There is a definition of collaboration in the activity on the part of agents from the milieu, although this is vague and not concise.	There is a definition of collaboration in the activity on the part of agents from the milieu, although this does not deal with the details of their responsibilities.	There is a definition of collaboration on the part of agents from the milieu, and clear and complete information is provided as to who is who and what their duties are.
ENGAGEMENT (#24 & #33)	Proposes a chaotic, disorganised participation model in which neither roles or the way of working are defined.	There is no definition of the responsibilities required of those involved in the activity, and so it is likely to end up being chaotic and disorganised.	There is no definition of responsibilities required of those involved in the activity, although it is expected that this may allow for the proper distribution of work load and responsibilities.	The participation model is defined and enables proper and fairly orderly work to be carried out with room for improvement, but enables responsibilities to be shared among all those involved in the activity.	Proposes a perfectly organised, categorised participation model in which all participants and agents involved share work and responsibilities.
GENDER EQUALITY (#26 & #33)	The approach is different according to the gender of the individuals who develop it, having a negative effect on one of them.	Does not provide an inclusive approach for all social genders, having a negative effect on at least one of them.	Does not take into account the gender dimension of individuals, although it retains a neutral position in this aspect to the extent that it does not affect participants.	It has not been specifically developed with gender equality in mind, but does promote it by providing a neutral approach in which it is developed irrespective of the gender of individual participants.	It has been developed specifically to promote gender equality among its participants.

RESPONSIBLE CITIZENSHIP (#28 & #33)	Proposes an approach that goes against responsible citizenship, acting negatively with regard to this characteristic.	Not only does it not take aspects of responsible citizenship into account, but that it is actually against them.	Does not define the characteristics of responsible citizenship or works on them, to the extent that the activity has no bearing on this characteristic.	Does not define the characteristics attached to responsible citizenship, although it does act in favour of them.	The activity prepares students to become more responsible citizens, empowering them with 21st century skills
ETHICS (#30 & #33)	Not considered with ethical purposes in mind, or fails to take them into account at all.	An ethical approach can be deduced, but this is secondary in terms of the activity.	There are ethical dimensions, but these are vague or not concise.	Considers the importance of ethical aspects, but these are not priority objectives for the activity.	One of its main objectives is to work on ethical dimensions in science and society.
OPEN ACCESS (#32 & #33)	There are no materials or resources available openly or free of charge.	There are free-of-charge materials and resources available, but these are not deemed essential to develop the activity.	The essential materials and resources are available online and free of charge.	A large proportion of the materials and resources are available online and free of charge.	All materials and resources are available online and free of charge.

#37	***Description of the organisation (required)***				
Indicator	**Don't know(s)** **-**	**DON'T AGREE AT ALL** **0**	**DON'T AGREE MUCH** **1**	**AGREE A LOT** **2**	**STRONGLY AGREE** **3**
Educational vocation	The educational vocation of the organisation is not described.	This is not an organisation with educational goals or experience in the sector.	This is an organisation in which education is a secondary goal, and/or the organisation has some experience within the educational context.	This is an organisation with clear educational goals that lends great importance to education, and with a proven previous track record.	This is an organisation with clear educational goals for which education is a top priority, and is fully immersed in the world of education.
Alignment with the project	No terms are found from which alignment with the project may be deduced.	Not in favour of the OSOS project, or even appears to be against it.	In favour of the philosophy put forward by OSOS in a tangential sense, but this is not a priority.	Contemplates the benefits that the OSOS philosophy could provide, but this is not the main objective among its priorities.	Considers Open Schooling to be a main characteristic among its priorities and is fully aligned with the project.
Experience in research	No mention of any experience in research undertaken by the organisation.	No experience in innovation and research projects in education.	They have no major experience in innovation and research in education, although they show an interest in it.	They have major experience in innovation and research in education, and this is one of their priorities as an organisation.	They have a proven track record in innovation and research in education, and are a recognised organisation in this sector.

Annex III: Accelerator Template

LOGO of the Project

NAME OF THE ACTIVITY:

THE TITLE OF THE ACTIVITY

QUESTION or PROBLEM THIS ACTIVITY AIMS TO TACKLE

How can we upgrade the lighting equipment of the School surroundings?

DESCRIPTION

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URL TO FIND MORE INFORMATION

http://my.own-url.edu/ http://or.more-than.one

CONTACT PERSON:

Name	Email address
1st name	email@address.com
2nd name	Email2@address.com
3rd name	Email3@address.com
And	So on

ORGANIZATION IN CHARGE:

Deusto
Universidad de Deusto
Deustuko Unibertsitatea
University of Deusto

Name of the organization
Postal address, country
Email address
Webpage of the organization

Open Schools for Open Societies

OSOS Accelerator No. #
Name of the Accelerator
Organization in charge
24/11/2017

1. DETAILED INFORMATION OF THE ACCELERATOR

NAME	**THE NAME OF THE ACTIVITY**	
KEYWORDS	Please, separate with commas.	
LANGUAGE	Defines the language of the project and can be one or more than the project languages.	
LEARNING OBJECTIVES	• Insert here the learning objectives of your activity • You can use different lines • As much as you want.	
AGE OF STUDENTS INVOLVED		For example, from 8 to 12.
SUBJECTS DOMAIN	The classification of ISE portal is followed for the domains of ICT, Mathematics, Science, Technology and Engineering.	
AVAILABLE PARTNERSHIP OPPORTUNITIES	Provided by students, they can describe the possible opportunities for partnerships and collaborations that the implementation of the project can build; e.g.: Stakeholder type — Description of its mission Local coffee shop — The barista can explain the students which are the main articles sold on his or her shop. University — Some researchers from the local university will show the research center to the students and explain them the chemical components of the food Government — The public health inspectors from the local government will show the tools they use to evaluate the quality of the food. And — So on	
COUNTRY IN WHICH THE ACTIVITY HAS BEEN DESIGNED OR CARRIED OUT		For example, Spain, Portugal and the Moon
RESOURCES NEEDED	Highlight the resources needed, both people, material resources (amount) and all you think is needed to implement this activity. You can use just text, but you can also use tables, lists or whatever you need. You can also refer to the price cost of those materials.	
PUBLICLY AVAILABLE	Do you want this activity to be publicly available on the OSOS Website (http://www.openschools.eu/) or just to share the materials within the OSOS members?	
OTHERS/NOTES	This is a white field to write anything you consider could be interesting for anyone interested on implement this activity on his/her Open School.	

Open Schools for Open Societies

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2. PLANNING OF THE ACCELERATOR:

# Session	Duration	Description	Resources needed	Location
1	50m	There is a deep description of the first session of the activity. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus	• Computers with Internet • Paper to write on	In the classroom
2	50m	This should be the second session description. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• Paper and pen	In the classroom
3	1h40m	For the third one. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• (Nothing)	In the local coffee shop
4	3h	And the four. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• (Nothing)	In the University Research Center (Chemistry lab)
5	...	Etc. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• Etc. • Etc.	In the classroom
6	...	Etc. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	In the classroom
7	...	Etc. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	In the Government offices
8	...	Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	In the local Food Factory
9	...	Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	...
10	...	Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	...
...	...	Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	...
...	...	Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	...
N	...	Until the last one. If needed, remove the rows you are not going to use, or add more. Cras vitae aliquet dui. Duis et urna suscipit, aliquam enim vel, aliquam lectus. Proin sodales dapibus nibh, non eleifend nibh luctus in. Donec malesuada leo tellus, sed semper est tincidunt quis. Phasellus at urna sed nisi mollis dapibus. Etiam suscipit eu leo vitae consectetur. Suspendisse imperdiet magna sed felis feugiat scelerisque.	• One • Two	...

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3. OTHER SUGGESTIONS

Free space to write other suggestions to the teachers interested in the implementation of this activity. Please, use the format you prefer to describe everything you consider.

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Annex IV: Detailed description of the examples

This Annex includes a detailed description of the examples used in this Deliverable: Dark Skies Rangers and Schools Studies Earthquakes.

Dark Skies Rangers (NUCLIO, Portugal)

Figure 2: Iberian Peninsula as seen from space (source: NASA).

Description

The international project Dark Skies Rangers (DSR) aims to combat the problem of light pollution, by raising awareness among the educational community and local authorities to change lighting systems and preserve the night sky.

Our planet, when seen from above during night time, exhibits a large number of lit areas. For example, we can easily identify the areas of greater population density in Iberian Peninsula when it is seen from the International Space Station during night time (Figure 2). That light patches also identify areas of great **light pollution**.

Light pollution is caused by outdoor lighting that light up upwards and/or sideways (Figure 3), making the night sky brighter, wasting energy and money, contributing to climate change, affecting wildlife, ecosystems and people's quality of life, and preventing astronomical observations.

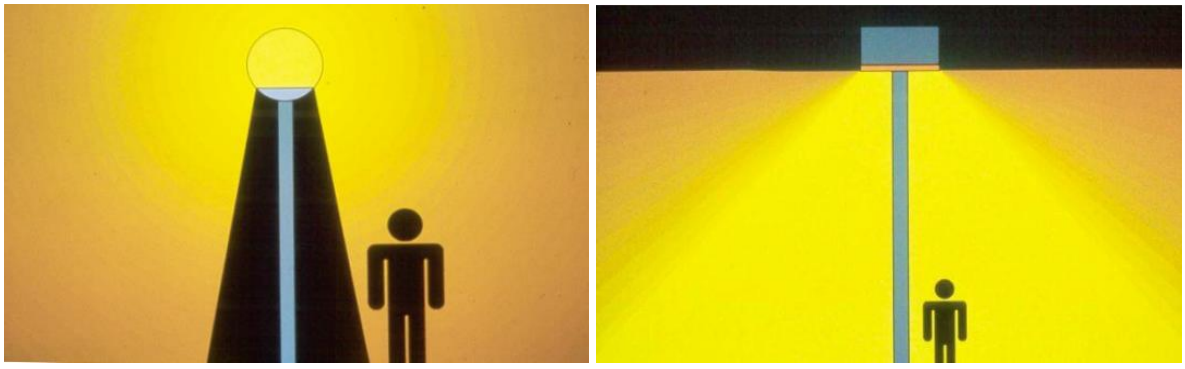


Figure 3: Schematics of a "bad" outdoor lamp (left) and of a "better" design (right). On the left, due to the spherical shape of the lamp without any reflector, light is sent upwards, originating light pollution; on the right, lamp includes a reflector

The project is expected to be carried out in Portugal, as an OSOS accelerator, involving students from the first grade until the end of the secondary school (ages from 6 to 18).

By the nature of the project, local communities are usually involved in the activities. In the most common case, families actively participate in the measurement of light pollution of their neighborhoods. Other common agents are policy makers (typically parish presidents and mayors), research centres and informal learning institutions (museums and science centres).

The main motivation to implement the project is the urge to fight light pollution, decreasing public costs with lighting, while giving back, at the same time, the night sky to the populations.

DSR activities are placed in the local streets and neighborhoods, as well as in the local sky, both of which students are able to identify and to connect. The activities enlist the passions of both students and teachers that participate in them, since all can apply concepts learnt or taught at school in order to solve the problem of light pollution and to promote a better quality of life. The activities also enable students to continue learning outside the classroom, making them putting into practice scientific and mathematical concepts and ideas they have learnt at school. The activities also draw on family members and the aforementioned agents, as well as on online sources of research and critique, because the problematic being assessed affects the whole community, not only locally, but also at a national level.

The project is based on a participatory model, where the involved stakeholders all share clear roles and responsibilities. Students have to perform measurements of the sky illuminance with the help of their parents and teachers; parents and teachers have to help students to present their results to local governments; the latter have to implement measures in order to reduce light pollution in their communities.

Gender balance, responsible citizenship and ethics

There are no gender specifications in order to carry out the activities and, so, these are inclusive and open to all genders. Moreover, the activities prepare students to become more responsible citizens, since it makes them aware of the problematic of light pollution, and engages them in actions to fight it, to reduce community costs, to improve quality of living for both humans and members of the ecosystem. It also empowers students with 21st century skills, such as collaboration, critical thinking, communication and creativity.

The activities bring out ethical dimensions of science, such as environmental principles (awareness for the light pollution problematic and waste of natural resources), decisions regarding public spaces (better outdoor lighting), respect for other people and living beings.

Topics covered and resources

Several subjects of national curricula are covered by the activities, such as Citizenship, Science (mainly Physics and Astronomy, as well as Biology), Mathematics, Design and Technology, and Computing.

The list of resources needed for the implementation of the activities is not long nor financially demanding: star charts and/or free astronomical software (Stellarium, for instance), Internet access, and a luxmeter. Optionally, the Quality Lighting Teaching Kit from NOAO (or equivalent) can be used.

The activity materials are all posted online and they are freely accessible by the public via the official website of the project (http://dsr.nuclio.pt/).

Organization responsible for the project

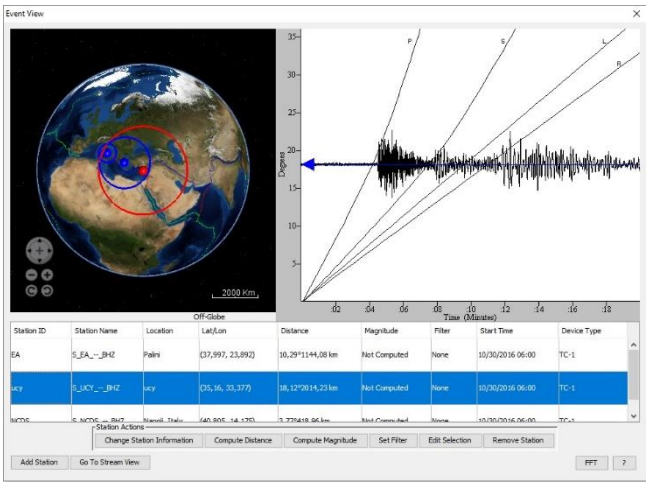
NUCLIO - *Núcleo Interativo de Astronomia* is a non-profit association whose main goals are the dissemination and teaching of science. In particular, NUCLIO uses Astronomy as a tool to foster the will to discover science and its importance to the society, and to make people aware of the world

that surrounds them. NUCLIO focus on teacher training, production of contents, the implementation of Inquiry-based Learning in the classroom, and in promoting scientific literacy. Consisting both of a panel of specialists in several areas of science and educators with extensive field experience, NUCLIO brings together in one single association an unparalleled ability to deliver science innovation to all interested people.

Schools Study Earthquakes (EA, Greece)

Schools Study Earthquakes: Schools acting as hubs of information on seismic activity and civil protection.

The aim of the accelerator is to create a network of OSOS schools (Hubs and connected schools) that will be active in citizen seismology. This accelerator focuses on the study of a physical phenomenon with great societal impact and proposes pedagogical practices based on inquiry-based methods that are more effective in science education. The objective of this combination is on one hand to increase children's and student's interest in science, on how science is made and how it affects everyday life, and on the other to stimulate teacher motivation on up-taking innovative teaching methods, subjects and practices to enrich and renew the science curriculum. The key is to provide increased opportunities for cooperation and collaboration between schools across European countries (mainly countries of the European South that experiencing seismic activity) and encourage relationships between stakeholders of both formal and informal education by **establishing a network of schools that will study real data, do real analysis of real seismic activity in real time and will present their results to their communities.** The specific project engages students in employing real-problem solving skills, handling and studying situations, and participating in meaningful and motivating science inquiry activities. The RRI component of the project lies in the fact that students deal with real seismic data that they have acquired themselves while they have to communicate their findings to the local communities. In countries like Greece, Italy and Bulgaria the phenomenon is rather common with dramatic results in many occasions. Surveys in the field demonstrate that the general public is not well informed on the necessary measures that have to be applied to minimize the impact of the natural phenomenon. The activities of the project promote scientific literacy, civil responsibility and transnational cooperation, but also problem analysis, solution formulation and entrepreneurship. Students are communication their results with their communities and at the same time are providing guidance for informed policy decisions and strategies related to civil protection. According to the European Volunteer Centre, volunteerism is a means of social integration and fulfilment achievement that contributes to the social cohesion by creating bonds of trust and solidarity while investing in the social capital. It is one of the ways with which people coming from all the socio-economic classes and ages can contribute to the positive development and change, it can be used as **a tool promoting active and responsible social participation** and the individual's social networks, while it **comprises a major power able to reinforce the local development and Civil Society.**



The activity is strongly **placed** as it focuses on the study in the reality of classroom practice of a physical phenomenon with great societal impact. Seismology is fundamental for understanding our dynamic planet, as it plays a vital role in monitoring both human-made and natural seismogenic events. Appreciating and understanding seismology's scientific and societal relevance requires knowledge of geology and physics, often coupled with elements of civil engineering, environmental sciences, official state policy, geography and geo-engineering as well as other scientific disciplines. Seismology is thus an engaging and quantitative science exhibiting a number of inherent links to wider areas of science but also to society.

The activity is strongly **purposeful** as It provides the basis for informed action to protect lives and property on local, regional, and national levels. As such, the specific accelerator not only contributes to providing high-level educational material to teachers and their students but highlights also aspects of civil protection, citizenship, civil responsibility and cooperation.

The activity can be considered as **passion-led** due to the large societal impact of earthquakes in some of the participating countries (Greece, Italy and Bulgaria), which along with the increased awareness of the participating students and teachers significantly contributes to meaningful collaboration between the participating schools in both national and international levels. The realization of the project as the school network must share data in order the service to be operational. If the data of the school seismometers are not available to other schools, then the project activities cannot be implemented.

The activity is **pervasive** as the students will need collaborate (even out of the school hours) not only with their classmates but also with researchers and other stakeholders from the local communities (e.g. civil protection agencies, volunteers who are supporting the local authorities in cases of large earthquakes). The implementation of the project requires the close cooperation between the schools' teams (both Hubs and connected schools) to make sure that the data from the seismic activity recorded are always available for all.