OPEN SCIENCE HUB

EMPOWERING CITIZENS THROUGH STEAM EDUCATION WITH OPEN SCHOOLING

DELIVERABLE 2.3

Participative Road Maps

Authors

Brendan Owens (TCD)

Contributors

Annamaria Lisotti (OSHub AB),
Shaun Ussher (TCD), Maria Vicente (ULEI)

Disclaimer

Reference

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Abstract	In this deliverable attention is given to highlight the work of each partner in the consortium and explain the pathways implemented to allow for stakeholder participation, including elements of co-creation and community building.
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List of Acronyms

ACRONYM	DEFINITION
GA	Grant Agreement
CSA	Coordination and Support Action
WP	Work Package
DEI	Diversity, Equity and Inclusion
STEM	Science,Technology, Engineering and Mathematics
STEAM	Science,Technology, Engineering Art and Mathematics
HO2020	Horizon 2020
SISCODE	Society in Innovation and Science through CODEsign
OSHub	Open Science Hub
TCD	Trinity College Dublin
ULEI	University of Leiden
FAB	Fab Lab Onl'fait
CCSTI	Centre Culturel Scientifique Et Technique Association
SCICO	SciCo I Science Communication
SCIN	Science In Cz Sro.
MCFR	Municipio De Figueira De Castelo Rodrigo
OSHub AB	Open Science Hub Advisory Board

Executive Summary

The OSHub.Network Training Workshop is Deliverable 2.3 (D2.3) from the coordination and support action (CSA), OSHub.Network, grant agreement (GA) 824581.

The grant agreement describes D2.3 as:

"Participative Road Maps through the co-design sessions in all the 8 OSHub.Net territories, involving all partners delivering innovative introductory training for effective tools for community building, co-creation, social entrepreneurship to allow peer-to-peer learning"

In this deliverable attention is given to highlight the work of each partner in the consortium and explain the pathways implemented to allow for stakeholder participation, including elements of co-creation and community building.

Information for this deliverable was gathered from the consortium in a number of ways. Information was collated from work pertaining to WP5 (Impact Evaluation) and WP7 (Legacy and Sustainability). Information on current target communities was gathered via Google Sheet as an extension to a log of all partner schools across the consortium and the communities of interest as stated in the original grant agreement. Information on collaborative, co-design and co-creation activity was gathered via a Google Sheet which called on the consortium members to classify their multi-stakeholder collaborations according to depth of engagement, which is elaborated on in the relevant section.

Finally, a Mural digital whiteboard was used to facilitate a session online to capture information on the grass roots work carried out across five of the OSHub Building Blocks (School Engagement, Stakeholder Mapping, Community Building, Local-to-global Challenges, Open Schooling Co-creation) for each local hub.

By explaining the core beneficiaries, key stakeholder collaborations and experiences for each and every partner it is hoped that a clear understanding of pathways to participation is available here to read.

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1. Introduction

1.1 Background: about OSHub.Network

The Open Science Hub Network (OSHub.Network), a consortium of nine partners across Europe, engages schools and local stakeholders in research and innovation as a tool for sustainable community development.

More specifically, the OSHub.Network is establishing a European network of community hubs – OSHubs, in communities that traditionally do not engage with research and innovation due to various barriers, geographical location, socio-economic status, or ethnic minority group background. OSHubs inspire, empower and engage citizens – from school children to senior citizens – in STEAM (Science, Technology, Engineering, Arts and Mathematics) learning and research opportunities, grounded on collaboration with societal agents.

As such, local OSHubs work as mediators in their local communities, positioning schools as active agents for collaboration between civil society, enterprises, research institutes, and families. This is performed by promoting an open schooling approach grounded in community-based participatory research practices: throughout this process, schools and communities identify local relevant challenges, which are then be transformed into relevant research and innovation projects, led by students and teachers, in collaboration with local stakeholders.

The OSHub.Network is developing a common methodological framework, that allows each OSHub to identify and analyse local needs, issues, opportunities and relevant actors, in order to address socio-economic, geographical, gender equity issues, and untapped growth potential. Inspired by the "Mission-Oriented Research & Innovation in the European Union"[1] approach, developed by Mariana Mazzucato, OSHub.Network will define a set of Open Schooling Missions, aimed at addressing local relevant challenges linked to the Sustainable Development Goals. These Open Schooling Missions will then constitute the basis for the creation and development of the open schooling projects, enabling real collaboration across communities. Importantly, to ensure diversity, inclusion and sustainability, in each OSHub location, there will be a local management board with representatives from local stakeholder groups – schools (including students), families, research institutes and universities, enterprises, industry, media, local governments, civil society organizations and wider society – which will be involved in all key processes and decisions regarding local OSHub programmes and initiatives.

By supporting local schools and communities with the tools and network to tackle relevant challenges, OSHub.Network aims to create local impact while simultaneously promoting an active global citizenship attitude, thus contributing to community development, innovation and well-being. To

1 Mariana Mazzucato (2018), Mission-Oriented Research and Innovation in the European Union – A problem solving approach to fuel innovation-led growth', European Commission, Retrieved from: https://ec.europa.eu/info/sites/info/files/mazzucato_report_2018.pdf

encourage usage and maximise impact in Europe and beyond, all resources, products and solutions developed by OSHub.Network will be fully based on Open Standards, such as open education, open technology, open science, open hardware, open design and open architecture. Also, OSHub.Network will create an online platform to share OSHub expertise, resources, and best practices with all OSHubs, their partners and the communities they serve. To ensure the legacy and reach of the project, all OSHub.Network resources will also be shared on existing large online educational repositories, and relevant national networks and repositories.

Finally, OSHubs will develop a legacy and sustainability plan, and will work closely with local governments, to ensure that each local OSHub has the tools and resources to continue beyond the lifetime of the project, and that the Open Schooling approach is incorporated in the school vision and organizational structure.

By the end of the project, it is expected that the OSHub.Network will have impacted 25 000 students, 1 250 teachers and 4 000 members of the community, through involvement in more than 150 school-university-industry-civil society partnerships in open schooling projects and activities.

In the long-run, we envision OSHubs as education brokers in their local communities, supporting local school networks to incorporate Open Schooling in their vision and organizational structure, leading to sustainable quality of education. Most particularly, OSHubs will facilitate the bridge between the needs and realities of schools and their local context and resources, as well as brokering for implementing national/regional policies, passing along signals from schools when policies are failing and advocating for context-sensitive policies.

1.2 Purpose of this report

The purpose of this document is to describe and compare the various paths to community engagement and co-design that each partner has created given their particular local circumstances (including pandemic considerations), stakeholder ecosystems and objectives.

While there is no single formula for participation, this document collates information partner by partner according to three main domains:

1. Participation Ecosystems:

The information presented here explains the local OSHubs reasoning behind the choice of schools/ communities to work with for open schooling projects.

2. Participation Stories:

The information here is as a table of current experiences that build a clear picture of what action at the local level looks like, including insights into decision-making, enablers, blockers, sustainability, and inspiration for peer-to-peer learning.

3. Participation Activity:

The information presented here explains collaborative activity taking place within the local ecosystem, with particular emphasis on the depth and involvement of stakeholders in co-design and co-creation activity.

2. Description of information domains

Participation Ecosystems

As part of the GA each project partner had identified communities in their local vicinities that could be classified as 'hard to reach' audiences. These communities were identified as having various geographical or socio-economic barriers to engagement with research and innovation. However, not all partners started their participation efforts in earnest within these original ecosystems given the changes in setting and focus in light of the pandemic.

For each partner, this section explains the most recent (at time of writing) justification for growing relationships and participation with particular communities and schools within them. This will set the context for participative activities that have been taking place in order to develop and progress open schooling projects.

Participation Stories

This domain aims to give a grounded understanding of how participation activity feeds into the Building Blocks for an Open Science Hub as explained in Deliverable 2.2 (Initiation Events). As the focus is less on the sustainability of each Open Science Hub as a social enterprise, the blocks 'Value Proposition' and 'Technical and Financial Feasibility' are omitted.

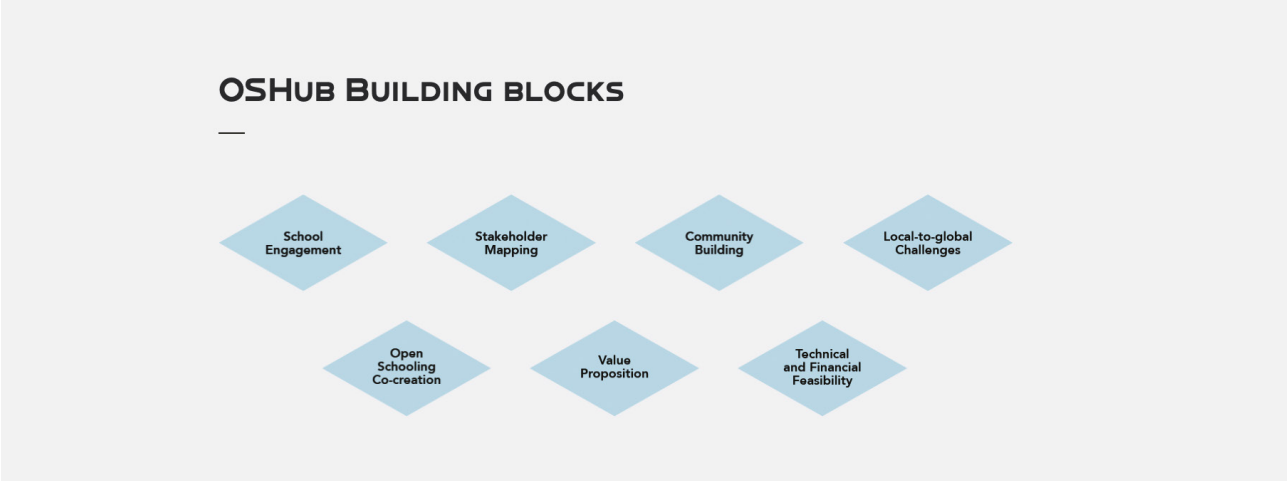


Fig 1. OSHub Building Blocks as featured on the project website under the OSHub Roadmap[2]

The categories at the top of each 'participation stories' table aimed to help each partner tell their story – the highlights, heartaches and the hopes for the future sustainability of programmes as well as inspirational moments from their activities thus far. These categories are:

- REASONING: Explaining the thinking or reasoning behind each building block
- ENABLERS: The motivator/ stakeholders/ processes that make project progression possible
- BLOCKERS: The barriers to progression experienced for each building block
- SUSTAINABILITY IS: A goal for what sustainability could look like for activity in each local OSHub
- INSPIRED BY: Motivating inspirational experiences at the local level to celebrate

Participation Activity

Finally, in order to understand the depth of stakeholder involvement, each partner's activity with stakeholders has been grouped using the designations from the SISCODE Comparative Analysis Report (GA 788217): 'consultative', 'punctual', and 'inclusive'. This activity was listed in Deliverable 2.2 (Initiation Events) with the purpose of explaining co-creation activity. While the same information is presented here, the format is changed to go partner by partner so that the narrative for each partner leads from ecosystem and stories, providing more fluid participative road maps.

As a reminder, each of the SISCODE designations are explained below. We have also included the context provided to each partner when filling in their stakeholders and related activity.

— **'Consultative'**
Stakeholders are not invited to co-create and remain external actors (SISCODE). You are asking them for advice or feedback on something built by others (OSHub.net context)

— **'Punctual'**
Stakeholders are co-creating in selective development phases (SISCODE). You are bringing them into one part of a project to build something together (OSHub.net context)

— **'Inclusive'**
Stakeholders are co-creating across all development phases and sometimes also beyond on the administrative/managerial level. You're building something together over the course of a whole project (OSHub.net context)

Before moving on, it should be noted that the entries in this section are representative of partner activity up to the end of the calendar year 2020 and are not a fully comprehensive log of all activities taken place to date. They should be seen as realisations of the short comments featured under "Participation Stories".

2 OShub.network project website https://oshub.network/roadmap.html

2.1 ULEI

2.1.1 ULEI – Participation Ecosystem

ULEI identified elementary schools in The Hague municipality with an educational disadvantage score above zero. They facilitated the opportunity to pair students in these schools with undergraduate students from the University of Leiden. In light of Covid, this collaborative mentoring programme was seen as important to address the lag in education as a result of the earliest European lockdown when those students had to learn from home.

For all the schools in their project, ULEI carefully analysed the educational disadvantage scores (OA scores in Dutch) and DLE scores[3,4].

The educational disadvantage score (OA score) takes into account a threshold of twelve percent for schools. This means that at a particular school, at least twelve out of every hundred pupils must belong to the disadvantaged target group in order for the school to be eligible for the educational disadvantage budget. All the participating schools have an OA score greater than zero.

Also factored are the DLE-score for each school. This score is composed of the DL and DLE, where DL stands for didactic age. This is the number of months a child has been in education since grade 3. Each school year has ten education months. So at the end of group 3 a child will have had ten months of education and their DL will be 10. Therefore, if a child has been held back, their DL may be higher than that of their classmates. If the child skips a class, their DL is likely to be lower than that of their peers. DLE means didactic age equivalent. This is a way of determining what level a child is at. One DLE represents what the average pupil can do after one month of schooling (from grade 3 onwards). At the end of group 3, the average pupil has a DL and a DLE of 10. If the DLE score is lower than their DL, they will be behind.

As they want their project to become a city-wide initiative that serves all school boards in the city, ULEI ensures that the number of students participating is divided proportionally among the school boards in the Hague.

2.1.2 ULEI – Participation Stories

3 https://www.cbs.nl/nl-nl/maatwerk/2020/06/achterstandsscores-per-school-2019

4 https://www.poraad.nl/nieuws-en-achtergronden/het-nieuwe-onderwijsachterstandenbeleid-een-recon structie

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	Matchmaking University and school students to assist with learning lag due to coronavirus.	Policymakers on school boards, teachers/principals, university students.	Lack of human resources at school, the school agenda, teacher availability.	...an ongoing and continuous relationship between school and university students, where schools are open to the specific areas of expertise that uni students can bring to the school.	Children who blossom and regain the self-confidence to learn through the relationship established between student and student.
STAKEHOLDER MAPPING	To join forces with different partners withinthe local community, who have major influence and who can achieve something sustainable.	It is very important that the first partner you are going to work with has a lot of energy and ambition for the project. This attitude is contagious to other partners. In addition, it is important that partners have a large influence within the community, such as municipalities.	Prejudices and a conservative way of thinking.	...partners being open to a long term relationship and expectations for the project should be the same.	Co-creation, celebrating the achievements.
COMMUNITY BUILDING	Working with and for the community, it is important that different actors in the community are engaged.	Community enthusiasm for the project and a certain degree of ownership over the project.	A non stable environment/situation.	...the project being seen to be of value within the community with a level of community ownership.	People proudly saying: we are in this project! Schools who we collaborate with already feel this way.
LOCAL-TO-GLOBAL CHALLENGES	The things we learn in the global setting can be used to solve problems/challenges on the local level.	Enthusiastic stakeholders and facilitators. Having insight into common goals and challenges.	Cultural / social economic / political differences.	...sustainable support in the form of both funding and the consortium/ network.	All the co-creation sessions we have had in this project.
OPEN SCHOOLING CO-CREATION	There are many other initiatives that are, maybe even without them knowing/calling it open schooling, driving the concept of open schooling. By organising open schooling co-creation sessions, people understand the drivers and get an open podium to voice their ideas.	An open attitude, understanding where people's struggles come from.	Available time, not so much headspace – more so people experiencing stress when trying new things.	...people understanding what they can gain from Open schooling (co-creation) and what the long lasting effect is.	A session we organised between school boards, municipality, and NGO and the University and the school for applied science to talk about research and open schooling methods.

2.1.3 ULEI – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

Vice-rector municipality of Leiden University

Activity?

ULEI consulted the vice-rector and policymakers from Leiden University to give a view on how the Open Science Hub project fits the vision of the University and how it could be implemented in the University structure.

Punctual participation in activity

Stakeholder(/s) involved?

Leiden University; Science Communication Department, Social Sciences (pedagogical, psychology and anthropology), Diversity and Inclusion Expertise Office, ICLON and Governance and Global Affairs – Den Haag Campus

Activity?

With these stakeholders, ULEI is setting up a training programme for students. This training programme will give them the basic information and pedagogical and didactic skills to be able to start their work with the schools.

2.2 TCD

2.2.1 TCD – Participation Ecosystem

Originally TCD intended to engage two very local schools in a specific nearby region of Dublin city with plans to facilitate co-design projects in a new TCD community outpost called Unit 18 in collaboration with other university staff who have community engagement objectives. However, as the pandemic unfolded from mid-March 2020 onwards, project work pivoted to the wider geographical region of County Dublin and online sessions, working closely and regularly with three schools.

Two out of the three of these schools have a DEIS (Delivering Equality of Opportunity in Schools) designation[5] meaning the students there are at the greatest risk of educational disadvantage. The third school, while not DEIS-indicated, is an Educate Together Secondary School with a high proportion of students with Special Educational Needs. This group of schools has four core principles of being equality-based, co-educational, learner-centred and democratically-run, making them an ideal partner school for the integrations of open schooling principles.

5 https://www.education.ie/en/schools-colleges/services/deis-delivering-equality-of-opportunity-in-school s-/

The areas surrounding each of the three partner schools have low indices of multiple deprivation[6].

The long term goal is to strengthen the close connection established with the three pilot schools and expand the adoption of an Open Science Hub programme with a wider set of DEIS schools and schools linked to Trinity Access 21[7]. Trinity Access 21 provides pathways to higher education to those met by a variety of geographical and socio-economic barriers. TCD sees this organisation and teacher relationships as key to establishing a legacy of open schooling programmes.

2.2.2 TCD – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	Working with three schools around the Dublin area to tackle challenges related to the area as a pilot. To use learnings to inform the creation of a polished programme for more schools in 2021/22 (with the same low socio-economic indicators/ barriers to progression).	Existing teacher relationships from previous science gallery interactions and relationship with school-networked organization (Trinity Access Programme).	Distance Learning / Covid / Prerequisites for school curriculum (work experience and fixed timetables).	...schools working with us to gain knowledge initially, able to start projects independently for next year with guides provided by Science Gallery alongside milestone interactions with outputs that appear in SGD exhibitions and leave lasting impressions with participating students.	Passionate students in workshops, teachers championing the programme in a wider teacher training session with the Trinity Access Programme.
STAKEHOLDER MAPPING	Bring stakeholder expertise in when students and schools are empowered with some prior knowledge and have made some topic decisions to narrow the choice through ideation sessions.	Personal referrals, and teachers knowledge of local actors, existing school relationships.	Timing to bring stakeholders onboard and alignment of goals. Restricted in choosing stakeholders to involve early on in the process before students and teachers have decided the topic to focus on.	...stakeholders forming a relationship with schools and finding possibilities for future collaboration independent of continuous Science Gallery interaction.	Conversations with immunologists about interpreting data/ vaccine hesitancy coinciding with visible interest from schools in bias, misinformation and discrimination.

6 https://maps.pobal.ie/WebApps/DeprivationIndices/index.html

7 https://www.tcd.ie/trinityaccess/teachers/schools/

COMMUNITY BUILDING	Choosing the right times to introduce community players to school engagements – as inspiration, as knowledge-deepeners, as support, as disseminators. The schools are the heart of the programme so externals being built in requires a careful approach.	The teachers from our partner schools saying it's worth getting involved (being communication champions themselves).	Students going in and out of the remote learning environment, taking too long repeating the ideation process to narrow down topics making it difficult to choose what and when (stakeholder interactions).	...creating/ adopting directories of potential open schooling partners for future projects, bringing OSHub schools together with expertise in STEAM and governance.	Students interviewing a community leader online with their own questions, directly asking that person on camera.
LOCAL-TO-GLOBAL CHALLENGES	Starting with student thoughts around identity and community to understand what they care about. Using this pilot year to come up with some good starting points for new schools that come from pilot year open schooling co-creation.	Teachers in partner schools remind students of activities linked to the topics we talk about that happen in other parts of school life/ subjects. Researchers with enthusiasm to engage schools with their topics. Teacher conversations to move the decision process forward.	The repeated idea funnel problem, pandemic landscape making it harder to ideate fast and bring relevant stakeholders to students in physical space for connectedness.	...finding the balance between student ideation from scratch and providing inspirational jumping off points – the pilot schools help with this for their sustained work.	Meeting with teachers and finding connections between student contributions, wider school context and our current capabilities. A sense of success when finally deciding a direction of interest.
OPEN SCHOOLING CO-CREATION	Focusing on academic-year--long school collaboration, with two main phases: competency building and project work. Aiming to introduce other stakeholders earlier in the process. In the pilot year externals involved later in the process because we needed to focus on schools first in uncertain times with fledgling relationships.	Teacher enthusiasm. Transition Year format/ freedom. Online tools suitable for digital collaboration (Mural, Google Jamboard etc), external stakeholder opportunities through other Science Gallery programmes/ projects.	Uncertainty in schooling arrangements during pandemic times. Absence of meetings/ workshops in physical spaces together.	...balancing milestone interactions of OSHub-IE/SGD/ TCD with self-facilitation guides and teacher training. As long as key ingredients of milestone interactions, a showcase of projects and a teacher forum can be maintained, DEIS schools with a TY year can continue this programme.	Finding out what students want to see in their area, unbiased by facilitators, just from their own cultural and science capital.

2.2.3 TCD – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

University College Dublin (UCD) and Trinity College Dublin (TCD) immunology researchers

Activity?

Consulted with researchers for designing a 'Trust in Science' workshop, part of a larger OSHub Transition Year Programme pilot (see last activity under 'inclusive participation in activity').

Punctual participation in activity

Stakeholder(/s) involved?

UCD nutrition and food sustainability researchers

Activity?

A series of co-creation workshops to co-design two multi-stakeholder 'Food Labs' for the Fit4food H2020 project (in themselves co-design sessions for a new 'food systems' map) with potential for similar techniques to be used as part of future OSHub co-creation sessions.

Inclusive participation in activity

Stakeholder(/s) involved?

UCD environmental researcher, Balbriggan Community College, Firhouse Educate Together Secondary School, North Wicklow Educate Together Secondary School

Activity?

Ideated two top-voted concepts with teachers (and student input through a survey) for students in the first Irish/European lockdown. A three-part self-guided challenge was sketched out followed by teacher review of the content proposed and dissemination of the final version to students.

Stakeholder(/s) involved?

Ringsend College, Balbriggan Community College, Firhouse Educate Together Secondary School, Trinity Access 21

Activity?

Flexibly delivering and modifying a Transition Year (4th year in the Irish school system with non-standard topics taught and work experience opportunities) pilot programme involving youth leadership, design thinking and ideation, active global citizenship goals and STEAM prototyping. The teachers from each of the three pilot schools co-design the delivery of workshops and project choices, all the while adapting together to deal with moving in and out of in-school and remote learning environments.

2.3 FAB

2.3.1 FAB – Participation Ecosystem

FAB have identified three schools with challenges that make them ideal targets for enhanced learning through the actions of the Open Science Hub. Two schools have student cohorts that traditionally underperform and find it difficult to achieve good results. In one of these cases the situation is particularly stark as special classes of about 10 students were created because they failed any other traditional path through education. The other (a vocational school), while typically recognised for good performance, lacks opportunities for students to be introduced to the application of what they are learning in a real world context. Also it is suspected that many students are from an underrepresented background, though data on this is not easily identifiable. Some broad information can be obtained from the Swiss Federal Statistics Bureau[8]. There is a current challenge in getting statistics about Geneva schools because they are not public and a strong motivation is needed to access this data. After dealing with the stresses and priority of Covid-19, the Department of Public Schools (DIP) has recently responded to requests for information. Although unable to share specific data they can identify schools that are underperforming according to their criteria. FAB plans to work with French schools thanks to the networks provided by a new member of Onl'fait, who was a technology teacher in France (about 50 minutes from Geneva). That would correspond to what was declared in the GA: developing programmes addressed to mixed groups of French and Swiss students as both communities are based on the Geneva lake (with the same environmental issues).

2.3.2 FAB – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	Working with three secondary schools in Geneva that face different challenges in teaching science: 1) vocational training (electronics) and societal recognition. 2) students who failed the academic school path and are guided to find their vocation and discover opportunities. 3) students who are failing science classes and are engaged in sustainability projects to learn about science.	Relationship of trust with teachers.	COVID : 1) it takes more time to establish contacts with schools and the DIP) 2) limited access to schools 3) outings cancelled 4) distance learning	...Fab Lab becoming a reference for the Department of Public School (DIP) for Open Schooling, science, technology and sustainability projects. School leaders and teachers having understood the potential of open schooling to continue engaging.	Students who stayed extra hours to discuss the topic.

8 https://www.bfs.admin.ch/bfs/fr/home/statistiques.html

STAKEHOLDER MAPPING	To better understand our stakeholders to identify what they can offer, what they can get, availability, alignment in terms of objectives. The ultimate goal is to develop a project that is successful for the schools but also for each and every stakeholder.	Align our needs with their mission.	Difficulty establishing ongoing communication channels due to COVID-19.	...becoming a go--to organisation for these stakeholders when it comes to open schooling and innovation in pedagogy.	The June consortium training session on co-creation.
COMMUNITY BUILDING	All programmes at the Fab Lab are ultimately aimed at the community. To create opportunities to meet, learn from peers, exchange knowledge, experiences and skills.	We are an association rooted in the community, working with many other community organisations/ individuals.	Because of COVID, we could organise only one live co-creation session. School outings to meet the community are limited if not cancelled. Events are not possible.	...when people who come to visit us come for a coffee or to share a story, they feel they belong.	The positive feedback from our neighbours when groups of students come to the Fab Lab to work and spend time on OSHUB.
LOCAL-TO-GLOBAL CHALLENGES	The Local to global challenges are at the core of the Fab Lab philosophy. We were inspired by global challenges and solutions (e.g. project Cave) to apply the approach to the Geneva context and – the other way around – we will share our results with the global network of Onl'fait.	Sound technical and scientific knowledge.	The pandemic situation greatly limits the exchanges at international level, that include: conferences, meetings with the other partners, students exchanges.	...successfully scaling up the project.	A foundation telling us that the project is so promising they would like to extend it to the whole country.
OPEN SCHOOLING CO-CREATION	Open Schooling co-creation sessions are a structured and powerful way to work collaboratively with schools and other stakeholders. They are a concrete but essential tool to develop open schooling projects.	Very structured sessions to guide the participants.	Because of the pandemic, the absence of face--to-face meetings limit the potential of co-creation sessions.	...using this approach in most of our future projects.	The Miro digital whiteboard was appreciated by teachers and it was proposed to transform it into a „real" board for the Fab Lab.

2.3.3 FAB – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

Post Tenebras Lab

Activity?

The lab is a sister hackerspace that already developed a ROV (Remotely Operated underwater Vehicle) and can advise on the technical challenges and solutions.

Punctual participation in activity

Stakeholder(/s) involved?

Office Cantonal de l'eau (Cantonal Office for Water)

Activity?

To set the scientific objectives for school projects and show the students how research at university level is carried out.

Punctual participation in activity

Stakeholder(/s) involved?

Geneva School of Engineering, Architecture and Landscape (HEPIA)

Activity?

To set the scientific objectives for school projects and show the students how research at university level is carried out.

Inclusive participation in activity

Stakeholder(/s) involved?

Maison de la riviére

Activity?

With this association FAB will:
1. Define the scientific objectives of the projects in collaboration with Geneva School of Engineering, Architecture and Landscape (HEPIA)
2. Share pedagogical resources
3. Scale up the project on national level.

Stakeholder(/s) involved?

Department of Public School (DIP)

Activity?

To help FAB identify schools in need and to share the results of the projects regularly.

2.4 AE

2.4.1 AE – Participation Ecosystem

AE has focused their efforts on a well-matched school to experiment with newly developed educational activities. The school is challenged by it's remote upper-Austrian location[9] as well as the region scoring lowest on the ranking of innovation dynamics for the whole country[10]. The schools main areas of focus are STEM (MeNaTech), media/arts (Medien und Kunst) and music, making them a natural fit for the Open Science Hub programme.

AE decided to select one specific testbed school in which all relevant OSHub activities and programs would be piloted. Therefore, it was necessary to find a school fitting to the pre-defined criteria (with a focus of structurally-weak, rural regions in Upper Austria) and one which has the necessary resources to ensure active involvement in the pilot. While the region offers a good number of workplaces, demographic development and innovation dynamics rank among the weakest in Austria.

2.4.2 AE – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	We would like to create a space where a growing selection of schools can access and integrate programmes for OSHub Create Your World (CYW) from a ‚menu' of programmes.	A desire from schools to explore creative ways to engage students.	Limited school accessibility due to COVID-19.	...creating an online platform that lists types of workshops that schools can sign up to, that connect to artists, scientists and industry. Ensure that this platform is understandable and accessible for schools.	The outputs of students in the first workshop.
STAKEHOLDER MAPPING	Not only understanding the needs of individual classes within different schools, but also how to create an accessible programme.	Personal referrals / festival event.	Difficulty establishing ongoing communication channels due to COVID-19.	...making the Hub truly Open – in that it is easy for new stakeholders to actively engage and can approach us rather than be approached.	School board interest in the Create Your World programme.

9 https://ugeo.urbistat.com/AdminStat/en/at/demografia/dati-sintesi/urfahr-umgebung/416/3

10 https://www.zukunftsranking.at/uploads/images/Zukunftsranking%202019/Zukunftsranking%202019%20Gesamtbericht%20FINAL.pdf

COMMUNITY BUILDING	Shared sense of purpose between teachers, artists and students.	Currently – online workshops.	Lack of informal meetings and discussions with community due to COVID lockdown.	...a sense of community that exists outside a ‚formal framework' of the OSHub.	The sense of engaged community work (although temporary) that occured on site during Create Your World as part of the Ars Electronica Festival..
LOCAL-TO-GLOBAL CHALLENGES	Always keeping everything in the context of global challenges and advocating a human-centred approach to technology that can affect positive change.	Passion from students towards global challenges.	The lack of time that teachers have, and the lack of space within curriculum to approach local issues directly.	...a school curriculum that is open to addressing local challenges and gives teachers time to follow this up within their classes.	The previous open science hub that has been undertaken by OSHub PT within Município de Figueira de Castelo Rodrigo and their success in engaging with local challenges.
OPEN SCHOOLING CO-CREATION	A bottom-up approach that can fulfil the needs of schools requires a co-creation process that engages with teachers is necessary to ensure that the OSHub can achieve a significant impact.	Listening sessions with teachers, and offering flexibility through an adaptable mindset as a facilitator at the OShub.	Uncertainty and instability due to COVID enforces a conservative and restrained approach to co-creation. A constant onslaught of impossibilities clouds the vast realm of possibilities that should be explored when co-creating.	...a culture of responsive listening that invites active co-creation but does not demand it.	The idealised model of co-creation that is inherent to the concept of open schooling. While it often seems unattainable, especially when negotiating centuries of school culture and social infrastructure, this fundamental ideal of open schooling inspires us to press on.

2.4.3 AE – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

Secondary school students, young people (U19)

Activity?

In a series of peer discussions at the Ars Electronica Festival 2020 young people were invited to discuss their creative projects, how they imagine the future and how they want to shape tomorrow's world. Their perspectives will help shape the development of OSHub Create Your World school workshop programme.

Punctual participation in activity

Stakeholder(/s) involved?

Artists, artistic researchers, school teachers, scientists

Activity?

Artists working within the domain of Art and Science are invited to develop school workshop programmes that integrate their current artistic practice and respond to existing lesson plans from teachers. Scientists evaluate the scientific concepts of the artist-led workshops and provide feedback to the artists.

2.5 CCSTI

2.5.1 CCSTI – Participation Ecosystem

CCSTI have embraced the national governments 'Cités éducatives' ('Educational Cities') initiative which has identified sixty neighbourhoods in France requiring additional student support to combat socio-economic inequalities. One of these regions is the area of Grenoble called La Villeneuve. The population faces several socioeconomic challenges outlined Portrait of the Grenoble population compiled by the CCAS (Communal Center for Social Action) in 2014 and 2019[11,12].

The local Open Science Hub will provide opportunities for schools to receive teacher training and resources and participate in co-creation workshops, however this has been difficult to progress with limited school opening at the time of this report due to Covid-19.

2.5.2 CCSTI – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	Working with schools in a territory where families encounter social, financial problems, new opportunities for teachers to initiate Fab Lab projects.	The fact that the education partners are thrilled.	It takes time to develop projects with teachers.	...teachers trained in how they can use the Fab Lab skills to develop new resources without us.	Teachers positive reaction to making mathematics kits.

11 https://www.grenoble.fr/cms_viewFile.php?idtf=15449&path=Analyse-des-besoins-sociaux-2018-2019 .pdf

12 https://www.grenoble.fr/cms_viewFile.php?idtf=4951&path=CCASGrenoble_ABS2014.pdf

STAKEHOLDER MAPPING	Making them share the spirit of the project.	Local association knows the local partners well. Teachers that will talk about the project to other teachers.	Time, covid.	...being able to get around the table and work together.	Organize an event to show projects.
COMMUNITY BUILDING	It is challenging to build the community, but communication about the projects will help.	All stakeholders agree that the project could fill some needs on the territory.	Covid lockdown.	... the need to understand the whole project and its opportunities.	Installing OShub Project at La Machinerie.
LOCAL-TO-GLOBAL CHALLENGES	Organizing co-creation workshops with the public/ students.	Creating/ using relevant tools.	Curriculum and school organisation make it difficult / teachers lack of time.	—	From one school to another, it will expand to the territory. Building a project between several schools.
OPEN SCHOOLING CO-CREATION	Teachers already have an idea of what open schooling is,their problem is more to have time to work on projects in addition to work with their classes, time is clearly a problem. The schools are not opened enough to co-build projects with us.	Trainings for teachers and educators, a guide to co-creation would be useful too.	We need to find teachers willing engage in the task of making projects.	...tools to share so people can maintain in the project.	Teachers and students coming to our Fab Lab to prototype solutions together with stakeholders of the neighbourhood.

2.5.3 CCSTI – Participation Activity

Inclusive participation in activity

Stakeholder(/s) involved?

L'Education Nationale, a substitute teacher of La Villeneuve de Grenoble, a teacher from the Village Olympique High School, several associations working on ecological actions, ecological change and actors of this change.

Activity?

Fabrication and delivery of five pedagogical kits for a substitute teacher, responding to the learning needs of children from 3 to 11 years old. We are bringing together the different stakeholders listed in order to respond to the request from this teacher who wants to work on an ecological transition project with her students, and maybe, after this first contact between them, CCSTI will work on the project with them too.

2.6 SCIN

2.6.1 SCIN – Participation Ecosystem

SCIN is working with three community organisations linked to schools and regions that face a mixture of challenges that requires additional support with a common desire to collaborate on an international level. Two of the regions experience socio-economic barriers to education and opportunity due to historic issues around resettling along the Czech-German border after WWII. A primary school is situated in a small village (1,740 inhabitants) in a peripheral area under the Sumava mountains, soutwestern Bohemia and was problematically resettled after WWII. This school also serves settlements beyond the village. A low quality of schools are situated in an area of former German settlements in the CZ-DE borderland (directly at the border). SCIN is working with the environmental organisation DoKrajin to explore opportunities with students from those schools.

The third organisation CSOP (Czech Union for Nature Conservation) Volavky provides a challenging scenario where traditional school students are combined with home-schooled students therefore leading to diverse educational needs.

2.6.2 SCIN – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	Addressing the separation of formal and informal education. It is hard to add informal activities onto formal ones.	Schools seeking innovative means of educating pupils which would also be fun for the young people.	Administrative overload and low drive to add additional activities.	...implementing activities into standard school education, partly also paid from innovative projects that allow school to work with new ideas and resources. But generally there is the need to compensate teachers for additional activities.	Students that put their own creativity and ideas while designing the activities and resources. Interest among other subjects dealing with OS.
STAKEHOLDER MAPPING	To ensure support and engagement – both in the places where local OShubs are running as well as within general public awareness. The mapping allows us to set the most appropriate approach on how to involve different kinds of stakeholders.	Active persons we (on the national level) and local OShub leaders (on the local level) have been collaborating with already before; other active people sharing the same view on educational activities.	Covid situation; some frustration of teachers from 1-year long on-line teaching; rigid thinking of local people from peripheral areas about how to educate kids in schools.	...choosing collaborators that have their own long-term interest in these kinds of activities.	Promotion; joining various events on various topics all around the country; sharing the social-media posts through personal accounts of collaborators.

COMMUNITY BUILDING	Open schooling and the idea of OSHub network is ideal means for community building, both locally and internationally.	OSHubs organize activities which actively seek engagement of communities.	Currently covid, but in Czech Rep. Lack of willingness to participate in community building activities.	Activities which are organised are likely to be sustainable from community perspective if an active crowd is drawn in initially.	Active community-wide discussion (sometimes also with national media interest) when the challenge selected is important for every-day life or interesting enough.
LOCAL-TO-GLOBAL CHALLENGES	Many challenges to be solved by OSHubs locally have their reasons or consequences in the global – e.g. drought, air pollution, traffic, sustainability.	Local challenges serving as entry point for discussion on global challenges and strengthening the link (see blockers).	The link between local and global challenges is weak (local challenges are well known, while global challenges are overlooked/ignored).	...taking a smart approach to solve important challenges inspires other schools and possibly serves as a base to get further finances from local (or regional or even national) institutions (municipalities, associations, public-engagement funds etc.).	OSHub project as a means to spreading information on UN SDGs nationally.
OPEN SCHOOLING CO-CREATION	Co-creation is a base for active community-wide discussion, and for better (deep) understanding of the challenges. It means that through co-creation activities we reach better results and ensure stronger community support. As an example – when local people join the forces to measure air pollution in their village, they also better understand the importance and take it „as their own" challenge.	Proving the validity of Open schooling approach via tackling of local challenges in a viable way.	The barrier between the formal and informal.	...producing good examples (of e.g. educational programmes, local public discussions, common field works) and resources (serving as the base for co-creation activities) and promoting them.	School students working as a team (on air quality topic), with the scientific – visual artist – PR expert – mediator „specialist".

2.6.3 SCIN – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

Faculty of Science (Charles University)

Activity?

Preparation of the concept for the educational and engagement approach.

Punctual participation in activity

Stakeholder(/s) involved?

Charles University

Activity?

Preparation of specific programs on air quality and particular identified local challenges.

Inclusive participation in activity

Stakeholder(/s) involved?

Institute for Theoretical Studies (Charles University)

Activity?

Preparation of the basic concept of the project, identification of local challenges and their scientific elaboration.

2.7 MCFR

2.7.1 MCFR – Participation Ecosystem

OSHub Portugal is located in the Municipality of Figueira de Castelo Rodrigo (MFCR), a district of Guarda. This region has no higher education options and the only school group contains schools with students who face high barriers to education and employment with a poor family history of progression through education.

The region has a total of 5,618 inhabitants (against 10,286,263 inhabitants in Portugal; 2019, ***PORDATA***) and a population density of 11 inhabitants/km2 (against 111.5 inhabitants/km2 in Portugal; 2019, ***PORDATA***). It has an aged population, with 31.2% of the population having 65 years or more (22% in Portugal; 2019, ***PORDATA***). Within the active population, 3.3% are employees of the local government (2019, ***PORDATA***) and 3.4% are unemployed (registered at public employment offices; 2019, ***PORDATA***). Also, ~5% of the local inhabitants are beneficiaries of the Social Integration Income (SII), a subsidy created to support persons/families that are in a situation of severe economic deprivation and at risk of social exclusion (2019, ***PORDATA***). Finally, the municipality has 0 higher education institutions in the territory and the nearest higher education institution is at a distance of ~60 km.

AEFCR is the only school group in the entire municipality (total of 9 schools and 451 students), making it the obvious choice to develop the OSHub-PT initiative with. AEFCR includes 3 schools in preschool education (21 students; data from the school year of 2020-2021, AEFCR), 4 schools in the 1st cycle of education (159 students; data from the school year of 2020-2021, AEFCR), 1 school in the 2nd cycle of education (61 students; data from the school year of 2020-2021, AEFCR), 1 school in the 3rd cycle/secondary education (107 students in the 3rd cycle of education and 101 students in secondary education; data from the school year of 2020-2021, AEFCR).

Regarding the socio-economic context, AEFCR is placed in group 1, for a total of 3 groups, the first group being the most underprivileged (2019, ***Público***). Also, 45% (AEFCR) of AEFCR' students receive School Social Action (SSA). SSA is a support measure aimed at contributing to the school expenses of pupils belonging to families with fewer resources. The objectives of SSA include fighting social exclusion and school dropout. It is also intended to promote equal opportunities in access to education. For this purpose, SSA includes measures like the economic contribution for food, school supplies, study visits and, in some cases, transport subsidy. Additionally, 16% (AEFCR) of AEFCR' students belong to the Roma community.

On average, student's parent's school levels don't go beyond the 1st year of high school (parents of students in the 9th-grade: school level of fathers – 6.83 school years, school level of mothers – 8.87 school years; parents of students in last year of high school: school level of fathers – 7.29 school years, school level of mothers – 9.72 school years; 2019, ***Público***). Additionally, school performance is poor. At the 9th-grade level, in 2019, AEFCR scored 2.75 out of 5 (2.44 in 2018) in the national exams (2019, ***Público***). Also, in the school year of 2017-2018, the retention rates were: 7th grade – 21.43%; 8th grade – 19.44%; 9th grade – 19.35% (2019, ***Público***). At the 12th grade level (last year of high school), in 2019, AEFCR scored 8.69 out of 20 (9.73 in 2018) in the national exams and was ranked 547° out of 625 schools (440° in 2018; 2019, ***Público***). Also, in the school year of 2017-2018, the retention rates were: 10th grade – 35%; 11th grade – 6.35%; 12th grade – 27.27% (2019, ***Público***).

Open Schooling (OS) impact assessment results suggest that OS educational strategy promotes increased awareness and participation of teachers in professional development programs, and enhances students' critical thinking, enabling them with collaborative work, inclusion and learning through social intervention skills. However, results also revealed that teachers need to invest more in their training, autonomy and collaborative learning with colleagues.

Having previously established the OSHub-PT initiative, MCFR has invested a substantial amount of effort in using the OS strategy to develop professional development programs for teachers and working with students to enhance their critical thinking skills and facilitate their collaboration with the community to work through challenge-based projects including water quality and environmental waste.

With societal issues in the local community, and a lack of readily available research and innovation interactions, OSHub-PT is perfectly placed to work with the regional school group to improve student empowerment and create opportunities to explore the interface between research, innovation and societal impact.

Statistical data about Municipalities, Portugal, Europe: https://www.pordata.pt/en/Home

School ranking data: https://www.publico.pt/rankings-escolas-2019/lugar-sua-escola

2.7.2 MCFR – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMENT	Partner with school disciplines/ initiatives (e.g. Citizenship & Development and Science Club).	Coordinator of the discipline of Citizenship & Development and Science Club.	Pandemic situation; no incentives to integrate more stakeholders in Open School projects (e.g. universities).	...school leaders and teachers having the capacity to continue engaging with open schooling projects.	It is very nice to see that teachers are using activities that we proposed to them, as support for their OS projects.
STAKEHOLDER MAPPING	Engage stakeholders that are aligned with challenges and/or are important for the implementation of open schooling at the local schools.	AEFCR [C&D and Science Club and Psychology and Guidance service (SPO)]; OSHub-PT is part of MFCR.	Pandemic situation; lack of incentives; time constraints.	...the involvement of school leaders.	A school contacted us recently to be involved in a national strategy for improving school digital literacy.
COMMUNITY BUILDING	Target the community through several open events (participatory session, science cafes, fairs, festivals, STEAM workshops, field trips).	Engage community champions (coordinator of C&D and Science Club and SPO).	Pandemic situation; lack of incentives; time constraints; always the same stakeholders involved – need to reach out to new ones; difficult to involve families.	...the involvement of school leaders; But also involve, on a continuous basis, stakeholders that are not part of the current school community.	Stakeholders involved in OS projects started being more involved in collaborative and co-creative approaches.
LOCAL-TO-GLOBAL CHALLENGES	Evaluate the past initiatives and schools current needs and brainstorm with school community leaders. At the same focus on challenges that are both locally and globally relevant (environmental challenges).	AEFCR [C&D and Science Club and Psychology and Guidance service (SPO)]; Environmental office; Drinkable Rivers Foundation.	Pandemic situation; lack of incentives; time constraints.	...the involvement of school leaders and municipality offices (environmental sector).	The students and families increased their recycling habits due to the involvement of the school community in Figueira Circular (Figueira Circular addresses the lack of recycling habits in the local community) and, at the same time, students are familiarised with an economic system that is based on trade, using a virtual currency called Sustento.
OPEN SCHOOLING CO-CREATION	Favour collaborative and co-creative work with the school as well as creating spaces (participatory sessions and co-creative workshops for working with teachers and students)	AEFCR (C&D and Science Club and SPO).	Lack of collaborative and co-creative working habits.	...investing in increasing teacher capacity so that they can be autonomous in the development/ implementation of OS projects with their students. Make sure that the OS approach/tools allow tackling local challenges and, at the same time, are integrated with school curricula.	Teachers are using collaborative and co-creative tools (OS or digital ones). School is inviting OSHub-PT to integrate their internal working teams that are developing/implementing school initiatives.

2.7.3 MCFR – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

Drinkable Rivers Foundation

Activity?

The coordinator of the foundation supervises the activities in OSHub-PT, by providing, for example, feedback on how to perform the water analysis and gathering our data for statistical analysis.

Stakeholder(/s) involved?

Luís Vieira, Marine and Environmental Research, University of Aveiro

Activity?

Gives their feedback and perspective on the OSHub-PT projects related to water pollution.

Stakeholder(/s) involved?

AEFCR School board, teachers from different school cycles in the region, school psychology unit

Activity?

Providing feedback on the development/implementation of teachers training program in Open Schooling and a digital literacy program.

Punctual participation in activity

Stakeholder(/s) involved?

Eugénia Pinto (IT teacher)

Activity?

This teacher has been providing support in the selection of students (choosing the ones with most difficulties) that will be part of the digital literacy program.

Stakeholder(/s) involved?

School and local community

Activity?

They are the target audience of the Drinkable Rivers project and collaborate in the collection and analysis of water samples.

Inclusive participation in activity

Stakeholder(/s) involved?

Firefighters from Figueira de Castelo Rodrigo

Activity?

Collaboration with the Drinkable Rivers project (citizen science project assessing the water

quality of rivers) by providing logistical support (they drive the boat that enables the water collection for analysis).

Stakeholder(/s) involved?

Environment office of the municipality of Figueira de Castelo Rodrigo

Activity?

Performs the water analysis together with the OSHub-PT and the activity participants.

Stakeholder(/s) involved?

Coordination of the Citizenship and Development discipline

Activity?

Collaborates in the coordination of the teachers training program in Open Schooling (approach/methods/tools). Collaborates in the co-creation of an Open Schooling manual with Open Schooling tools.

Stakeholder(/s) involved?

Teachers of the Citizenship and Development discipline

Activity?

These teachers are the target audience of the teachers training program in Open Schooling and are implementing Open Schooling projects autonomously. Also, these teachers will be providing feedback for the Open Schooling manual that MCFR is building and has several Open Schooling tools that have been co-created by the OSHub-PT and the teachers from the local schools.

Stakeholder(/s) involved?

Regional training center

Activity?

Collaborates in the certification of the teachers training program in Open Schooling and in the advertisement of the programme.

2.8 SCICO

2.8.1 SCICO – Participation Ecosystem

SCICO has a natural partner in the form of Gymnasio Livadochorious, a school located in the centre of the island of Lemnos. The island is in the Northeastern part of the Aegean sea, on the border with Turkey. It is therefore considered to be a geographically isolated area, which relies heavily on the primary sector (agriculture, fishing, etc) and less on science and technology[13]. The University of the Aegean

13 https://insete.gr/wp-content/uploads/2020/04/%CE%A0%CE%B5%CF%81%CE%B9%CF%86%-CE%AD%CF%81%CE%B5%CE%B9%CE%B1-%CE%92%CF%8C%CF%81%CE%B5%CE%B9%CE%BF-%-CE%91%CE%B9%CE%B3%CE%B1%CE%AF%CE%BF.pdf

has a small Department of Food Science and Nutrition however it does not seem to be connected with the schools and primary or secondary education, something which is a goal of this project.

The island provides a biodiverse ecosystem which the school does not have the training or equipment to properly explore with respect to environmental and animal conservation. By the nature of Lemnos being a relatively small island, opportunities for students are limited and Open Science Hub Greece can help expand students horizons and connect them to scientific research, methods and PhD researchers from The University of The Aegean.

2.8.2 SCICO – Participation Stories

	REASONING	**ENABLERS**	BLOCKERS	SUSTAINABILITY IS...	INSPIRED BY
SCHOOL ENGAGEMNT	Start from a centrally located pilot school, even though the reach won't be as wide as it could be	Personal referrals	Covid,Lack of time, Lack of motives.	Involve more teachers, more schools, more levels.	Going back to physical, hands-on activities!.
STAKEHOLDER MAPPING	Try to have different kinds of organisations involved.	Personal networks/ referrals – what's in it for me?	Lack of commitment/time.	Engage them actively in specific projects/dissemination actions.	Collaboration expanded to other projects, outside OSHub.
COMMUNITY BUILDING	Multi stakeholder engagement.	Co creation workshops – identify relevant challenges.	Different priorities among stakeholders, lack of time, politics, covid.	Active engagement 360: all stakeholders need to believe in the project and be actively involved. This will create a momentum that will keep bringing up needs and solutions from the different participants but will also ensure a solid nucleus which will continuously attract new members.	—
LOCAL-TO-GLOBAL CHALLENGES	Define projects that are relevant for the community and can be solved with the help of Science and Technology.	Narrowed down mostly to the SDGs.	Don't have input/ engagement from all stakeholders.	One great project will hopefully build the momentum for the next, and so on.	Found promising link between school – university – biodiversity – tourism.

OPEN SCHOOLING CO-CREATION	Work on tangible projects relevant to everyone.	One successful school project will hopefully engage the other stakeholders eg. Municipality.	Too theoretical so far – needs to become more hands on. Lack of co-creation mentality.	A meaningful approach people will believe in and will continue after the project ends – A community that stays „alive" and connected.	Students are entering national competitions with the projects they are creating through OSHub.

2.8.3 SCICO – Participation Activity

Consultative participation in activity

Stakeholder(/s) involved?

Afthonia

Activity?

This is an environmental NGO on the island of Lemnos, from whom SCICO receives feedback for specific issues. SCICO hopes to develop this collaboration into an inclusive collaboration overtime.

Stakeholder(/s) involved?

Municipality of Lemnos

Activity?

The Municipality is engaged at a consulting level for the time being, providing expertise on environmental issues, through the respective department.

Punctual participation in activity

Stakeholder(/s) involved?

University of the Aegean

Activity?

SCICO is collaborating with the University in order to a) create a series of educational workshops/ lectures delivered by the University to the school and the local community and b) work with phD students in order for them to help school students with projects on the one hand and on the other hand receive data and input for their research projects by the school and the local community (a citizen science approach).

Inclusive participation in activity

Stakeholder(/s) involved?

Gymnasio Livadochoriou (School)

Activity?

Since the beginning of the project SCICO are in collaboration with the director, teachers and stu-

dents of this school in order to co-create the educational STEM curriculum, identify issues and respective projects that will solve them, provide necessary equipment for projects and create a tangible, inclusive action plan.

3. Concluding Remarks

In every case, partners have made progress through a challenging pandemic year with respect to discovering and adapting connections and participative concepts. What is compiled here is undoubtedly a work in progress, but a firm milestone in participative actions with local schools and communities to lay the foundation for their local Open Science Hubs.

Ongoing efforts will see partners strengthening and building on relationships and co-creation to make progress in what is hoped to be a year less impeded by pandemic consequences. This is particularly important when considering some hubs as workspaces set up for in-person visits and also in creating stable and continuous school collaborations.

To conclude Deliverable 2.3 Participative Road Maps we have presented below a statement from each partner completed after filling in the categories in their 'participation stories' table. Each statement begins "OSHub-XX is proud to be…" (where XX is the country identifier). Each statement consolidates a partners mission under the banners of open schooling and the OSHub.network.

OSHub-NL is proud to be…

"...a city wide initiative that connects very different local stakeholders like the municipality, the university, an ngo, the school for applied science, school boards and schools, supporting them to pursue the same goal and to improve and sharpen the program along the way, which has been set up by all. We believe that we are encouraging the various partners to think out-of-the-box and we are happy to see that schools and scientific institutions are starting to open their doors to each other."

OSHub-IE is proud to be…

"...working with schools collaboratively to empower students and show them how tackling challenges is an interdisciplinary endeavor and the tools they learn as part of the programme are giving

them useful ways to interpret and reflect on the world around them as important global citizens."

OSHub-CH is proud to be…

"...an outsider in the Geneva formal education system, capable to bring in new ideas, energies, methodologies and competences."

OSHub-AU is proud to be…

"…integrating the embodied knowledge of cutting-edge experimental artists working with technology with schools to inspire young people to create their world."

OSHub-FR is proud to be…

"...part of an ongoing wave that will contribute to inspire education system with open schooling opportunity and a support for stakeholders of the territory to make their projects come true."

OSHub-CZ is proud to be…

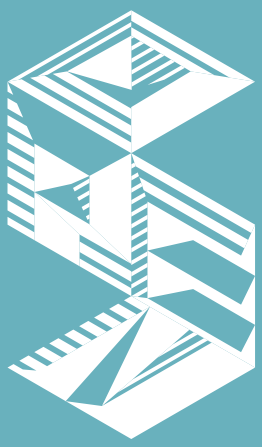
"...an innovative education content creator and provider, which disrupts the formal education system with open schooling principles, and helps boys and girls tackle various locally-relevant social issues by scientific means."

OSHub-PT is proud to be…

"...acknowledged by the school as a partner, providing support to teachers in their OS projects and see that this support is useful. Also, potentiating the involvement of local stakeholders in OS projects and school initiatives and see that this involvement is not necessarily dependent on OSHub-PT facilitation. And finally promoting the use of collaborative and co-creative approaches/tools among teachers."

OSHub-GR is proud to be…

"...a breath of student innovation, collaboration and creativity through hands-on STEM learning which connects schooling and learning to the community and the real world."



OPEN SCIENCE HUB

EMPOWERING CITIZENS THROUGH STEAM EDUCATION WITH OPEN SCHOOLING

DELIVERABLE 2.3

Participative Road Maps