CONNECT

Inclusive open schooling with engaging and future-oriented science

# D2.2

## D2.2. Engagement Toolkit for schools and different stakeholders

info@connect-science.net

www.connect-science.net

This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

CONNECT

Inclusive open schooling with engaging and future-oriented science

# D2.2

## Engagement Toolkit for schools and different stakeholders

| DELIVERABLE TYPE | MONTH AND DATE OF |
|---|---|
| Report | Month 12, August 2021 |
| **WORK PACKAGE** | **LEADER** |
| WP 2 | Living Lab for Health at IrsiCaixa |
| **DISSEMINATION LEVEL** | **AUTHORS** |
| Public | Jessica Fernández<br>Rosina Malagrida |

| Programme | Contract | Duration | Start |
|---|---|---|---|
| H2020 | 872814 | 36 Months | September 2020 |



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

## Contributors

| NAME | ORGANISATION |
|---|---|
| AINA ESTANY | IRSI |
| MARINA PINO | IRSI |
| ALEXANDRA OKADA | OU-ECYS |
| GIORGOS PANSELINAS | RDE |
| MIHAI BIZOI | VUT |
| SIGRID NEUHAUS | DBT |
| CANDELA BRAVO | LOBA |
| EVA JAHO | EXUS |
| RAQUEL GLITZ | PUCPR |

## Peer Reviews

| NAME | ORGANISATION |
|---|---|
| ALEXANDRA OKADA | OU-ECYS |
| GIORGOS PANSELINAS | RDE |
| EVA JAHO | EXUS |
| CANDELA BRAVO | LOBA |
| MIHAI BIZOI | VUT |

## Revision History

| VERSION | DATE | REVIEWER | MODIFICATIONS |
|---|---|---|---|
| **1** | 30/09/2020 | ALL PARTNERS IN KICK-OFF MEETING | Initial Diagnosis |
| **2** | 07/04/2021 | ALL PARTNERS IN A WORKSHOP | Initial Diagnosis (2nd part) |
| **3** | 11/05/2021 | ALL PARTNERS IN A WORKSHOP | Initial Diagnosis (3rd part) |
| **4** | 08/06/2021 | ALL PARTNERS IN A WORKSHOP | Outline approved by all participants |
| **5** | 14/06/2021 | USER ADVISORY BOARD (UAB) | Outline approved by UAB |
| **6** | 14/07/2021 | ALEXANDRA OKADA GIORGOS PANSELINAS CANDELA BRAVO | 1st version shared with peer reviewers |
| **7** | 26/07/2021 | EVA JAHO | 2nd version shared with peer reviewer: coordinator |
| **8** | 30/07/2021 | EVA JAHO | Final version |





This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

# Index of Contents





This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

## Index of Tables



## Index of Figures




This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

# 1. Executive summary

This Engagement Toolkit includes an Engagement Action Plan and the needed resources which are meant to serve as a guideline for all CONNECT partners and other stakeholders outside the consortium willing to implement CONNECT educational activities starting with the engagement of schools and other stakeholders at local level.

The resources will be useful to support the engagement activities and include introductory tools to the project with presentations of the project, its benefits for participants and how it will fit their needs and expectations. These tools are available in different formats such as slides presentations, email and invitation letter templates. The resources also include a cooperation agreement form and guidelines to run engagement workshops with stakeholders.

In addition, the Toolkit also offers optional resources to facilitate a systemic change in schools willing to initiate a transformative change to innovate and become open schooling education centers that will continue after the project CONNECT. These resources consist of guidelines to run workshops aimed at exploring the complexity, visioning change and designing a roadmap for change.

Partners and other stakeholders can use the Engagement Toolkit as it is, or they can also adapt it to their local context and needs and develop their own local or national Engagement Plan.


This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

## 2. Introduction

Science education is key to provide young people skills and knowledge to become actively engaged and responsible citizens able to use scientific thinking and make evidence-based decisions (EU, 2015). Moreover, science education plays an important role by empowering students to develop competences for problem-solving and innovation and stimulating aspirations towards science careers among students. Science learning is commonly associated to complex concepts related to STEM (science, technology, engineering and mathematical) subjects. However, a broader perspective of science learning is needed to understand how science literacy influences decision-making processes in a globalized world.

*Open schooling* (OS) is an educational approach promoted by the European Commission to support cooperation between schools and scientists and local communities including families for youth to contribute to solve real problems, enabling schools to create flexible and inclusive learning environments and to inspire students to explore the world through science.

As an OS project, CONNECT aims to promote innovation in science education through addressing real-life challenges that affects students' communities in partnership with scientists, enterprises, families and civil society to reverse the trend shown in recent studies that have shown that many students think that "science is not for me". These students lack the so-called 'science capital', which refers to their scientific knowledge and skills (what they know), their science-related attitudes and values (how they think), their science behavior out of school (what they do) and their experience with science at home (who they know who is close to science, what perceptions towards science and STEM careers do their families have). These key factors, as low cultural familiarity with science; lack of role models and limited opportunities to engage with science outside formal education., especially affect students coming from disadvantaged backgrounds (Archer, Mann & Stanley, 2014), and influence their relation with science and their possibilities to see themselves as future scientists.

The multistakeholder OS approach to science education aims to contribute to improve science perceptions among youth and their relatives leading to motivating and rewarding experiences for them.

However, as the current educational model does not promote collaboration with multiple stakeholders, partners and other stakeholders willing to implement CONNECT activities will need to actively promote engagement activities to engage schools, families, scientists and other community stakeholders.

In this Toolkit we facilitate an Engagement Action Plan and the needed resources which are meant to serve as a guideline to facilitate the scalability of the open schooling model.

.


This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

## 3. Initial Diagnosis

To design the Engagement Toolkit an initial Diagnosis was performed where CONNECT partners collectively explored what challenges and opportunities do the education community and other stakeholders face when joining an OS project, especially during the pandemic. These challenges should be considered and addressed by CONNECT if we aim to engage a great number of schools and families, and therefore constitute the basis for the design of this Toolkit. This Initial Diagnosis also included a first ideation of possible solutions

The Initial Diagnosis started with a first ideation of the key problems and opportunities that should be addressed for successful engagement. It was performed in a workshop during the Kick-off meeting of the project during September 2020. To facilitate co-creation, a digital workspace was set to collect information from all partners.

The first exercise aimed to reflect on problems, opportunities and solutions for schools and families' engagement (see figure 1). It was followed by a similar reflection focusing on scientists and other stakeholders' engagement.

Participants were encouraged to write problems in colored sticky notes, according to this code: red for problems, green for opportunities and yellow for solutions or recommendations. With the results of the workshop, afterwards an internal analysis was performed to classify the inputs in clusters.


*Figure 1. Digital workspace's screenshot*


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

Up to 21 clusters of problems, opportunities, and solutions were identified for schools and families, and other 21 clusters were obtained from the analysis of results for engaging scientists and other stakeholders. These clusters are listed in table 1.

*Table 1. Clusters of problems and opportunities for engaging in OS*

| **Target to engage** | **Education community** Including school teachers, school Head, science coordinator, school inspectors, policy makers, entities that produce or disseminate education resources, students and their families) | **Science community and other stakeholders** (Scientists; group leader and institution director; communication, outreach and education department; policy makers and funding organizations; others) |
|---|---|---|
| **Clusters identified:** | • Innovation<br>• Time<br>• Curricula<br>• Relevance of content<br>• Digitalization<br>• Accessibility of materials<br>• Access to research<br>• Support during implementation<br>• Teacher empowerment<br>• Collaboration teacher to teacher<br>• Collaboration with experts<br>• Covid-19<br>• Dissemination<br>• Recognition<br>• Direct benefits for policy makers<br>• Inequalities<br>• Families' engagement<br>• Family empowerment<br>• Student motivation<br>• Interest in science careers<br>• Collaborative learning | • Motivation<br>• Career development<br>• Access to resources<br>• Time<br>• Economy/Funding issues<br>• Covid-19<br>• Benefits for scientists<br>• Benefits for institutions<br>• Scientists' skills<br>• Empowerment of institutions<br>• Outreach<br>• Materials<br>• Needs<br>• Visibility<br>• Alignment with career<br>• Accessibility to schools<br>• Policy makers related issues<br>• Promotion of citizen science<br>• Engaging at institutional level<br>• Collaboration |

The Initial Diagnosis followed with a second ideation workshop carried out during a plenary online meeting with all Consortium members during April 2021. Firstly, participants were asked to reflect on causes and consequences of the previously identified clusters of problems and opportunities to engage schools and families. Secondly, they were encouraged to reflect on the following categories that should be addressed to overcome the problems and take advantage of the opportunities: Materials/protocols, values and beliefs. Lastly, they reflected on types of activities that we could promote for a successful and sustainable engagement. This ideation was based on previously defined goals for engagement inspired by the EDGE tool, which is a self-assessment tool to assess your institution's support for public engagement that was developed by the National Coordinating Centre for Public Engagement (NCCPE).


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

Based on the results of this second ideation workshop, an internal analysis was conducted which leaded to the identification of the key aspects that we should address to promote engagement and the key solutions to put in place. The key aspects included recognition, tight curricula, meaningful learning, need for support, and new role of schools, inequalities and process of change. In table 2 we describe these aspects and the key solutions that CONNECT can offer to address them.

*Table 2. Key aspects to be addressed for engaging of schools and families*

| KEY ASPECTS | Why is it so important? | How can CONNECT contributes to address it? |
|---|---|---|
| **Recognition of schools and teachers** | Teachers (including early career educators) and schools value innovation in science education and families will also appreciate it when it is made public or when it is seen that contributes to solve community challenges. | CONNECT promotes innovation through open schooling engaging families and other stakeholders from the community in research and participatory science to solve local challenges. Therefore, students, teachers and schools will gain visibility and also social recognition, and they will also be offered CONNECT badges. |
| **Time constriction and tight curricula** | The number of topics that curricula cover leaves limited space for engaging activities to enhance skills related with the scientific method, which are in turn key for students to feel confident to use science in their daily life. | CONNECT science actions such as structured and open-ended scenarios promote enhanced development of skills linked with the scientific method, which are a key part of the curricula. |
| **Meaningful learning** | Teachers value learning through scientific method and believe that motivating students to become engaged citizen scientists with and for the community contributes to increase science capital and leads to better learning outcomes and increased interest in science and STEM careers. | CONNECT facilitates partnerships to engage families, communities and scientists in science projects in schools that address community challenges using real data and increase students and families' interest in science and STEM careers, which is key for achieving learning outcomes. |
| **Partners to support education** | Some teachers think that implementing changes in science education is difficult for a single teacher acting on its own. | CONNECT participants will benefit from partners supporting education:<br>- Teachers acting as coachers of other teachers to provide support during the process. |


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

| | | |
|---|---|---|
| | | - Researchers becoming partners to provide students a role model and real data<br>- Families getting involved in the learning process as a key for achieving the learning outcomes<br>- Policy makers being targeted to ensure sustainability |
| **New role of schools and science in community** | Some people think that science is distant and not relevant for society. Science can be considered an academic subject with no direct implications in daily life. | CONNECT promotes collaboration with the community to contribute to local challenges, that could help to demystify the idea that science is distant and could contribute to increase students' and family's perception of science being socially relevant. |
| **Inequalities** | Inequalities among students coming from low-income families lead to disadvantaged students that lack motivation towards science learning. Digital inequalities and other basic needs coverage should be addressed to assure a successful learning experience. Motivation towards science and STEM careers should be promoted for all students equally. | CONNECT Engagement plan offers a tool for schools to design an Engagement Action Plan to apply changes in science education which includes targeting charities to contribute to diminish inequalities. Open-ended scenarios and the CKD framework can be used to create science-actions to fight against inequalities, such as crowdfunding campaigns to obtain digital resources for disadvantaged students. |
| **Process of change** | Implementing a change such as becoming an OS is a process which requires resources (materials, protocols) but also values and beliefs. A deep reflection process is required to design and implement an Action Plan for successfully change to implement CONNECT. | CONNECT offers an Engagement Action Plan that will guide and support teachers and schools willing to make changes in science education. |


This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

## 4. Aims of the Engagement Action Plan

The overall aim of the Engagement Action Plan is to engage schools, scientists and other stakeholders in OS using CONNECT resources. In order to be successful in achieving this aim, based on the results of the initial Diagnosis, we defined secondary aims that the Engagement Action Plan should include to address the key aspects for engagement. See Table 3 where we describe the secondary aims and we assign them to the corresponding work packages:

*Table 3. Secondary aims to address key aspects for engagement*

| **WORK PACKAGE** | SECONARY AIMS TO ADDRESS KEY ASPECTS FOR ENGAGEMENT |
|---|---|
| **WP1. Communication** | • Activities to disseminate methodologies, materials, etc.<br>**Recognition initiatives** |
| **WP2. Engagement** | • Activities to reflect on problems and opportunities for engaged research<br>• Activities to explore needs (students, teachers, community and scientists) to identify community challenges to contribute to<br>• Activities to engage influential leaders<br>• Activities to engage in existing research projects<br>**Activities to engage charity initiatives to address inequalities** |
| **WP4. Design materials** | Activities to co-create educational materials |
| **WP5. Coaching** | **Activities for learning with coaching teachers** |
| **All WP involved** | **Activities to evaluate (engagement, coaching, learning)** |

## 5. Phases of the Engagement Action Plan: Awareness and Implementation

In order to achieve the aims of the Plan, a 3-years Engagement Action Plan was designed to engage teachers at individual level, teams of teachers and school heads at school level, diversity of stakeholders within the community and also other stakeholders such as STEM professionals. This Plan is designed to be implemented during the course of the project and also after the project ends.


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

The outline of the Plan was validated during a third workshop run within the consortium held on June 2021 and also with the User Advisory Board during an online meeting held also during the same month.

The Engagement Action Plan, starts every year with a first “awareness phase”, which is aimed to present the project and disseminate it to reach the expected target, and is followed by the second phase, called “implementation phase”, that comprises activities to actively engage teachers and other stakeholders in the project and support them along the process.

The Awareness phase is coordinated by the national partners of CONNECT. In the case that the partner is not an education organization, it will work in collaboration with a local education organization. This phase can also be facilitated by teachers who, after the first pilot year, are selected to become coaches and support other teachers in the implementation phase of CONNECT. This phase can also be coordinated by other stakeholders willing to promote OS. The implementation phase includes activities to be coordinated directly by schools with the support of the partner or other stakeholders who coordinate the awareness phase.

In the next sections we describe the activities suggested for each phase and each year of the Plan (see Timeline with a summary of the activities in section 7).

## 5.1. Engagement Action Plan: Awareness phase

### 5.1.1. Key messages to address with different stakeholders

To successfully engage stakeholders during the Awareness Phase, it is important to make sure that they are aware of their benefits when engaging in CONNECT. Our recommendation is to highlight these benefits when addressing the different stakeholders with messages such as:

- **School Heads/science coordinators**: they can contribute to make their school more inclusive and accessible, increasing the capabilities and motivation towards science careers for all students equally. With CONNECT they can also obtain an open badge that could recognize the school as an educational center involved in open schooling and innovation, which could be highly appreciated by the schools’ families. The schools can gain visibility and motivate other schools to implement similar actions.
- **Education inspectors/Education counselors:** their collaboration is key as they can contribute with solutions with the support of the Education Department of the local government. They can act as referrals, by recommending CONNECT to other schools and Institutions.
- **Teachers:** they can access to curriculum-linked and ready-to-use educational resources that they can use in their science classes to improve the learning process and avoid the “science is not for me” effect. They can share their experiences with other teachers around the world implementing science-actions throughout the CONNECT platform. They can contribute to the students’ engagement and involvement by promoting OS activities in collaboration with scientists, families and other stakeholders.


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

- **Families:** they have the opportunity to be involved in the students' science education, stimulating a shared interest in science and future careers in this domain.
- **Students:** they can give their perspectives to improve their learning experience. They can contribute to solve community challenges and experience how science can have a direct impact in their daily life. CONNECT activities (i.e., the approach to real-issues through science, the interaction with scientists, etc) can have an important role when considering to pursue science as their future careers.
- **Scientists/STEM professionals, enterprises and other stakeholders**: they can experience personal and professional fulfilment and increase motivation by sharing their knowledge and passion with young people while raising awareness about their job.
- **Civil society organizations (CSOs)**: they can raise awareness within their community about their activity and improve how they solve real-problems by involving students, families and other stakeholders.
- **Policy makers and funding organizations:** they can benefit from co-created knowledge, lessons learned and recommendations to improve their policies and priorities to contribute to solve the real needs of the community and/or education
- **Editorials/entities that produce or disseminate educational resources:** they can contribute to create educational resources that fits better with the needs of the schools through open OS approaches

(See D1.1 Communication and Dissemination Plan to check more key communication messages).

### 5.1.2. Resources of the Action Plan.

To implement the Awareness phase each year, CONNECT offers resources that national partners in the Consortium and other stakeholders can use to promote engagement at community level, including an **email** and **letter template** for teachers, **slide presentations** and a **cooperation agreement form** to sign with teachers and/or School Heads, respectively included in Appendix I, II, III and IV of this deliverable.

CONNECT also offers other communication materials that can complement those included in this Toolkit which have been developed by LOBA from WP1, such as leaflets, brochures, video clips, etc, available at https://www.connect-science.net/public-results/.

Find below a description of the engagement resources and how they can be used:

- **Email:** this template can be used as a first contact with teachers. It is focused on the main aim of the project, which is changing the "science is not for me" conviction that many students have. The email also aims to and raise awareness of issues related with values and beliefs to engage in an OS project such as CONNECT, i.e., contributing to solve community challenges and some limitating factors that prevent teachers to engage in OS. The email includes an invitation to find out more in the letter and the brochure, which we recommend to attach. This template can be targeted


This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

to teachers and school heads whom partners may already know from previous collaborations or to unknown teachers and school heads.

- **Letter:** the letter informs about the goals of CONNECT and what it offers to achieve its goals (resources, platform & coaching) and pays special attention to the opportunities and benefits for teachers who implement science-actions. A link to the website and the platform is included in the body of the letter.

- **Slide presentations:** Two versions of slide presentations are provided to present CONNECT to teachers, school Heads and families: a) the shortest one (see Appendix IIIa) is a brief storytelling presentation that is meant to be used as a first but engaging contact with the education community with the aim of stimulating their interest to know more about the project; b) the longest version (see Appendix IIIb) explains in detail what CONNECT is, what it offers, how to benefit from it and reasons to engage, and it is meant to be used when there is already an interest to find out more to decide to join CONNECT.

- **Cooperation agreement form:** This document is a formal agreement to establish a partnership between the education community (teachers, school and/or family representative) and a national partner of the CONNECT Consortium, which act as a National coordinators. By signing this cooperation agreement, the teacher/school Head commits to engage in CONNECT following an agreed plan and schedule described in the document to implement a specific number of science-actions and the National coordinator, acting on behalf of CONNECT, commits to provide resources and support during the implementation phase. School Heads/teachers can engage in CONNECT through three different modalities according to the number of teachers to involve and the number of science-actions to implement. At the end of the implementation phase, which ends with the end of the year course, they will be asked if they would like to renew this agreement for the next phase.
- A video that summarizes the project with some examples of science actions from pilot 1 and 2 will be prepared during pilot 2 to support visibility, scalability and impact with dissemination of best practices.

  Optionally, the second and third year, schools will be offered a fourth option to engage in CONNECT, which implies to start a process of change in education that will affect the school at organizational level. Specific workshops to support this process (exploring pros and cons for open schooling, visioning change and designing and implementing an Action Plan for Change) are provided in this Toolkit to support them if they select this option.


This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

### 5.1.3. Activities to implement during the Action Plan

The Awareness phase of the Engagement Action Plan includes the following activities:

- **Stakeholder analysis**: For national partners that are not educational institutions themselves, we recommend to start by identifying a community education partner who will help to start contacting with schools and to disseminate the activities. Other partners may also be helpful for different engagement purposes. In order to identify who are the key stakeholders that could help you in the engagement, we facilitate a guide with a visual thinking tool to conduct a **stakeholder analysis** (see Appendix V). This guide facilitates partners and stakeholders to think of other stakeholders that belong to either the education community or the research community and innovators for each of the areas of the system (education, social, economic, institutional, technology, research and innovation) and to think also of stakeholders within each of the challenges that the educational resources will cover. This activity is optional during the first year but it's strongly recommended in the upcoming years for a sustainable engagement.

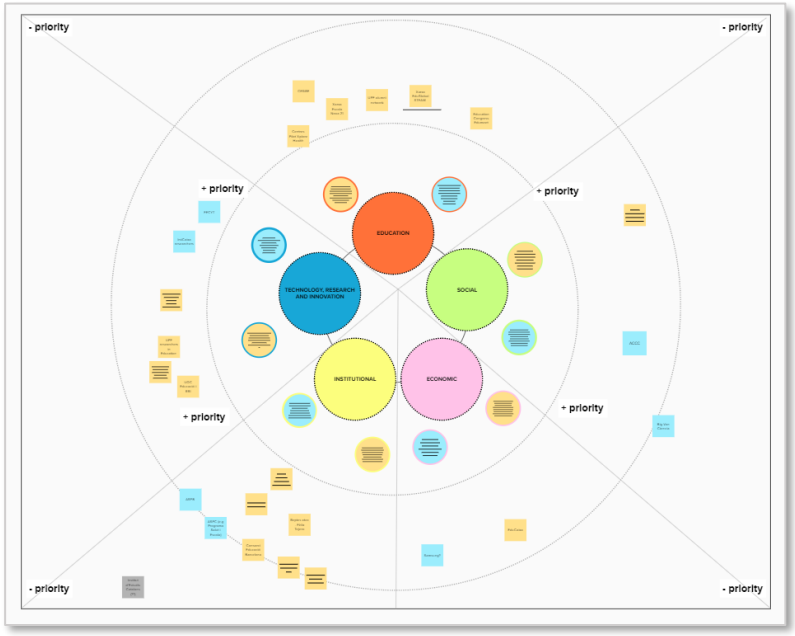


*Figure 2. Visual Thinking tool to conduct the stakeholder analysis filled in by one of the partners of CONNECT*

- Creation of a local and/or national **User Advisory Board** (UAB) to support the implementation of the project and the Engagement Action Plan. The Board should include diversity of stakeholders identified with the previous stakeholder analysis.
- **Emailings and webinar presentations** shall be performed to present CONNECT at community level during the awareness phase of the three years of implementation of the project


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

Additionally, during the second and the third year we recommend to offer schools workshops and webinars:

- **Workshops to reflect on problems and opportunities related to OS**, which aims to stimulate interest in OS and in the project and find strategies to overcome those barriers that teachers may find during the implementation phase (see guidelines in Appendix VI).
- **Workshops for brainstorming on future visions of schools** with OS approaches where the "science is not for me" is not a problem anymore (see guidelines in Appendix VII).
- **Webinars related to OS** to **specific social challenges** to which the schools are likely to contribute. The format and diversity of stakeholders to engage in these webinars will be defined by each national partner to respond to their context needs and expectations, but the involvement of teachers, scientists and students is highly recommended. In order to previously identify challenges where schools are going to focus their work, national partners can launch surveys. They can also encourage schools to explore the community needs before they decide on the priority challenges (see guidelines on how to explore community needs at 10.a.ii).

### 5.1.4. Dissemination during the Awareness Phase of the Action Plan

Dissemination of the activities to promote engagement is key to reach the expected target in the project. For this purpose, dissemination actions both at international, national and local levels are included in the Engagement Action Plan:

- The **OS Together community**, an initiative of 9 OS projects funded by the European Commission to collaboratively raise awareness about OS, will contribute to disseminate CONNECT and the other projects, by posting in social media, publish relevant news in a common Newsletter, organizing joint workshops and webinars, etc.
- The **CONNECT website, blog and social media channels** (Instagram, Facebook, Twitter and LinkedIn) will also be used to disseminate:
    - The activities of the awareness phase organized by national partners to engage schools.
    - The announcement of the signature of the cooperation agreement between the school and the national partner to increase recognition of schools as OS education center.
    - Students' best practices awarded (see section 5.5).
    - Testimonials from teachers, students, families… that participate in CONNECT activities.
    - A videoclip that will be produced by LOBA during the second year to promote CONNECT during the third year, which is aimed to scale up the project. This videoclip will show the platform, students' best


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

practices awarded (see section 5.5), resources, tools and reports produced.

- At school level, schools are encouraged to publish in **schools' social media channels** what they are doing with CONNECT and CONNECT will contribute to disseminate social media posts published by schools (that use the project's handle @connecth2020).

All actors are encouraged to disseminate these communication activities:

- National partners are encouraged to promote these activities through their communication channels. If they are not education partners, they are encouraged to do so through a local education partner working in cooperation.
- Schools can also participate in this dissemination, to encourage their teachers to join the movement and also to gain recognition as a school interested in innovating in science education.

If this Deliverable is being used by other stakeholders after the project ends, this section can also be inspiring to design your own Dissemination Campaign (see D1.1 Communication and Dissemination Plan for more ideas to disseminate).

## 5.2. Engagement Action Plan: Implementation phase

### 5.2.1. Activities to implement the Action Plan

The Implementation phase of the Engagement Action Plan includes the following activities:

- The first action to start the implementation phase is to **sign the cooperation agreement** form (see appendix IV) with, at least, a teacher, the School Head and the National Coordinator acting on behalf of CONNECT. Optionally, a coach and scientist will be signing the cooperation agreement form too. This action of formalizing the cooperation is optional during the first year, but necessary during the second and third year.
  By signing this cooperation agreement, that is expected to be renewed at the end of the implementation phase, the School commits to engage a certain number of teachers, who will dedicate a certain amount of hours to implement a number of science-actions with students and their families, to provide outcomes and evaluation data to monitor the implementation phase, whereas CONNECT commits to support teachers, provide resources, contribute to recognition by giving participation badges and disseminating the main outcomes.

- Once the cooperation agreement is signed, teachers are expected to implement CONNECT activities and they will be asked to **register at the CONNECT platform**, where they will be required to **sign the informed**


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

**consent** individually. Through the platform, teachers access the resources, get support from coaches, interact with other teachers/schools implementing the same activities, contact with scientists and submit their student's outputs for badge recognition (see section 5.5).

- At the end of the implementation phase, we recommend to organize a **Congress with teachers, scientists, families, policy makers and charities** to disseminate the main outcomes of their science actions. This is optional during the first year but strongly recommended at the end of the second and third year. The involvement of charity organizations aims to attract them to give support for the project, and specially to address inequalities among students from vulnerable backgrounds. It can be organized by a single school, for a group or network of different schools in a region or at national level.

### 5.2.2. Optional: Activities to initiate a process of change at school level

The teachers engaged in CONNECT will be implementing an innovative open schooling approach with changes towards a more inclusive, innovative, participatory and student-centered methodology. However, in some schools, this change may be implemented only by one or some teachers. In this section, we offer guidelines to help those innovative teachers, together with their school heads, to start an optional pathway to benefit from a change process at school level with the definition of an Action Plan for Change, which could be designed during the second year, and then implemented during the third year and the upcoming years.

In order to design the Action Plan for Change, we suggest the following actions:

- The **identification of a coordination team**, which should include the Head of the school, at least one teacher that had previously implemented CONNECT that would act as a coach for teachers implementing CONNECT for the first time, a scientist and a family representative. This coordination team would act as a driver of the process of change, and will engage the education community in the next actions.
- **Emailing and webinar** or face-to-face seminar to present the OS initiative
- **Stakeholder analysis** to identify the participants to invite to the workshops for transformative change of the school (Appendix V)
- **Workshop "Pros and cons to improve (science) education through OS"** to reflect on problems and opportunities to implement OS (see Appendix VI)
- **Workshop "Visioning Change in (science) education",** to describe a desired future when the school has become an OS (see Appendix VII)
- **Workshop "Developing an Action Plan for Change in (science) education"**, which will require a new stakeholder analysis, and may include actions to facilitate the implementation of educational activities in


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

schools and also training for teachers in challenges addressed and OS activities for policy makers and charities (see Appendix VIII).

To implement such a process of systemic change and move from the traditional educational model towards an open schooling model that better fits with societal needs, there is a need to implement a paradigm shift. This shift requires reforming or transforming all aspects and components of a system in the educational setting (Reigeluth & Joseph, 2010). These components may include, among others: organizational changes, staffing and administrative support; curriculum and instruction; supplies and materials; scheduling and grouping; monitoring of student progress and family and community support (Fullan, 2000).

In order to support schools in the transformative change within all these systemic components, the workshops include activities where participants are invited to identify the key factors within these systemic components of the education system with a visual thinking tool specially designed for this purpose (Figure 3, available to download from Appendix IX).

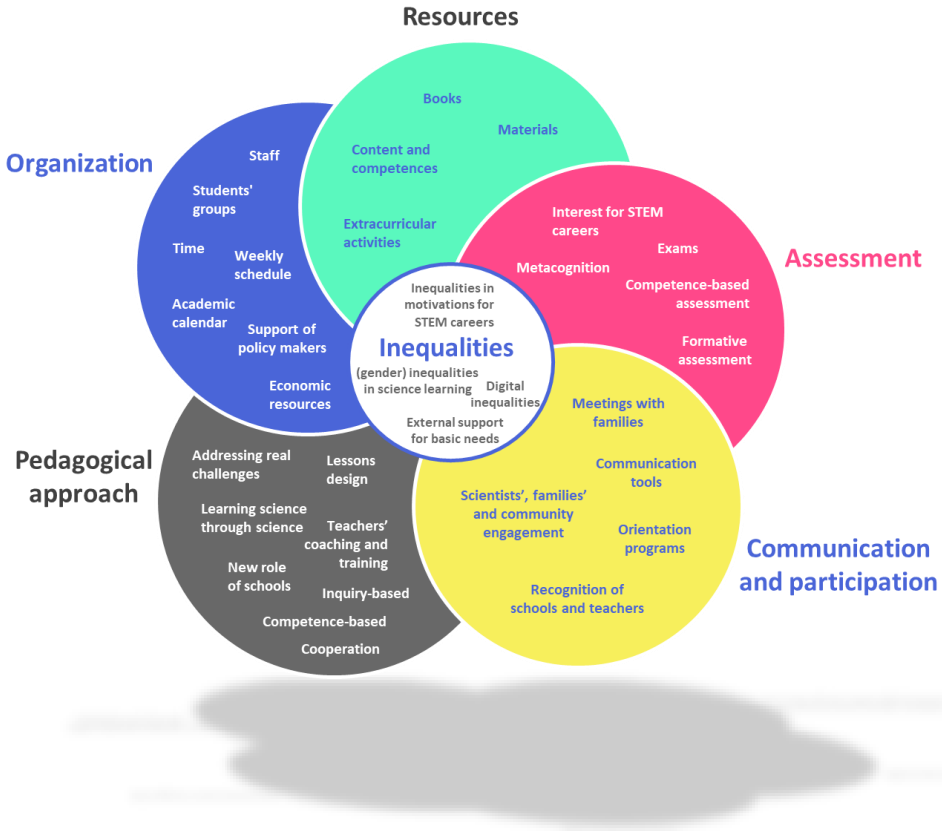


*Figure 3. "Visual thinking tool: components of the education system"*

This tool has been created considering components of the educational system inspired by frameworks from the scientific literature (Fullan, 2000; Ipek, 2021) but also with the key aspects identified in the Initial Diagnosis.


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

### 5.2.3. Optional: Activities to co-create materials

When schools start implementing CONNECT resources it may happen that they will be interested in adapting the materials or in creating their own science-actions to address their own needs and expectations in terms of curriculum coverage or community needs. If that is the case, national partners and coaches, can promote activities to support schools during this process, such as, co-creation workshops to develop or adapt educational resources based on structured science-actions and opened scenarios guidelines. These activities could be optionally organized during the second and third year, including activities to:

- **Explore students' and community needs** (see D4.3. A Set of Science Action resources for informal education) where you will find a methodology to explore community needs, challenges and topics to address);
- **Co-create educational materials**, see in Co-designing educational modules (Van der Meij, M.G., 2020) guidelines on how to organize a workshop with this aim. Although this document is focused on developing educational resources on food, it can be easily adapted to other challenges.
- **Promote engagement in existing research projects** with citizen science and other participatory research approaches. To identify possible current research projects where your school/s can participate, we encourage you to contact a research funding organization, a research council, the outreach department of a research center or the European Citizen Science Association (ECSA).

### 5.2.4. Dissemination during the Implementation Phase of the Action Plan

Dissemination is key to provide a sustainable engagement in the awareness phase but also during the implementation phase, when the following activities will take place:

- At school level, teachers are encouraged to **disseminate school activities, testimonials, materials** developed by the school under the CONNECT project and **Congresses** organized, where both researchers, policy makers and students will share knowhow, project results and perspectives. They are encouraged to use social media (including the project's handle @connecth2020) and other channels, such as blogs, school website, local newspaper, etc. LOBA, the Consortium partner in charge of communication within WP1, and the national coordinators will contribute to disseminate these publications too. To facilitate this task, schools are encouraged to mention CONNECT and the national partner in social media, or to contact them via email. If the national partner is not an education organization, this task will be performed by education organizations working in collaboration with the national partners. The


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

dissemination of schools' activities may be also conducted in the respective languages, whenever considered appropriate).

- **Evaluation data** from CONNECT will also be shared with schools and they will be able to disseminate this data (e.g. data on degree of satisfaction, motivation …) among the school community including families.
  To disseminate at international and national levels, the project partners acting as national coordinators and the schools from the country where the partners are, will be responsible for writing a **blog article and a press release per country** with the help of LOBA, who will disseminate this content through the project channels and also to a database of journalists.The blog articles will be published in the website in English and in the respective language considering the respective partner country (Spanish and Catalan, Greek, Portuguese, Romanian). The Press Releases will be also distributed in English and/or the specific language/s.
- **Badges for recognition** and participation certificates will be offered to schools, teachers and students that participate in CONNECT right after they upload the students' outputs on the platform indicating as well the dissemination that has been carried out to let the community know about the science actions and its local impact. This recognition will be disseminated on the social media channels of the project and of the national partners or educational national organizations to increase the impact and recognition. Schools are encouraged to also communicate through their channels.
- Schools will be encouraged to submit best practices for acquiring a **special award** that will contribute to their recognition, and which will also be disseminated. The dissemination of these recognition actions will also be carried out by both schools, LOBA and national partners or educational national organizations.

### 5.2.5. Coaching during the Implementation Phase of the Action Plan

A coordinated action between the different work packages is required to guarantee engagement during all the project. In this sense, WP5 will lead the coaching through videos, meetings, etc., and will contribute to support teachers implementing CONNECT resources, providing them a successful experience that can help to engage other teachers in their schools.

At the end of the implementation phase of the first year, a personal SWOT analysis and a selection process will be applied to those teachers willing to become coaches during the upcoming years. At the end of the second and the third year, coaches will offer a reflection journal to teachers that will help to reflect on the development of the implementation phase and to provide feedback on evaluation data.


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

Moreover, a collection of short videos in the CONNECT YouTube channel (https://www.youtube.com/channel/UCwu0eUL9l9-idJ45Ih9NjrA/videos) have been released to engage teachers by providing tips that they could bring into their lessons to make them more participatory and engaging, such as methods, guidelines and strategies to facilitate conversations and group discussions, to promote scientific inquiry with real issues, to use visual thinking tools to organize ideas and integrate knowledge and to develop scientific skills.

# 6. Evaluation and monitoring

## 6.1. Evaluating science capital

Other interventions from different work packages will take place simultaneously during the implementation phase, which in turn contribute indirectly to engagement and therefore they have been included in this Engagement Action Plan, such as evaluation, dissemination and coaching actions (as described in this section and in 6.3. and 6.4, respectively).

Regarding evaluation, **pre- and post- questionnaires, interviews and/or focus groups** will be carried out with the school head, science head, science coordinators and teachers to collect their perspectives about the impact of OS in science learning. **Science capital surveys** will also be carried out with students at the beginning and the end of the implementation phase to monitor the impact of CONNECT methodology in increasing science capital.

## 6.2. Monitoring engagement

To monitor engagement, indicators described in Table 4 should be collected by all the CONNECT partners, and coordinated by the Living Lab for Health at IrsiCaixa, as part of its coordination task of the implementation and monitoring of this the Engagement Action Plan.

*Table 4. Indicators that will be collected by WP2 to monitor engagement*

| **Engagement indicators** | |
|---|---|
| Events organized for introducing the project | • Number of webinars, visits, calls or meetings performed<br>• Number of schools reached<br>• Number of teachers reached<br>• Number of dissemination activities performed to present the project |
| Workshops to engage teachers to start working with CONNECT | • Number of workshops run<br>• Number of schools that participated<br>• Number of teachers that participated |


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

| Engagement indicators | |
|---|---|
| Activities and events to promote CONNECT with scientists and community members | • Number of activities/events (mailings, meetings, conferences...) performed<br>• Number of research organizations reached<br>• Number of scientists reached<br>• Number of community members reached |
| Events to engage community stakeholders with scientists, teachers and students | • Number of events performed (congresses, webinars, festivals...)<br>• Type of activity conducted<br>• Type of community stakeholder targeted<br>• Number of community stakeholders that participated<br>• Number of scientists that participated<br>• Number of teachers that participated<br>• Number of students that participated |
| Number of cooperation agreement signed with schools | • Number of cooperation agreement signed for first time<br>• Number of cooperation agreement renewed |
| Dissemination of schools' activities by teachers and students | • Number of dissemination activities done<br>• Type of activity performed (blog article, tweets, etc)<br>• Url of the publication |
| Informed consent signed | • Number of informed consents by teachers<br>• Number of informed consents signed by students/families |
| Activities to address inequalities (digital inequalities and other inequalities) | • Number of activities<br>• Type of activities<br>• Type of stakeholder that participated<br>• Number of stakeholders that participated<br>• Types of support obtained to address digital or other inequalities<br>• Number of students/families who had benefit from the obtained support |

Moreover, since the Plan also involves activities from other work packages that are related with engagement which have been mentioned in this Deliverable, such as communication, evaluation and coaching, other indicators-related information will be considered. Find in Table 5 examples of indicators that will be collected by WP1, 5 and 6. If this Engagement Action Plan is being used by other stakeholders, this list of indicators can be used as inspiration for monitoring change.


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

*Table 5. Indicators to measure communication, evaluation and coaching outputs and outcomes related with engagement*

| Communication indicators (WP1, collected by LOBA) | Learning indicators (WP6, collected by OU and WP3, collected by EXUS) | Coaching indicators (WP5, collected by VUT) |
|---|---|---|
| • Website traffic: visits, page views by countries, age groups and time spent on the website, etc.<br>• Number of publications<br>• Number of views of newsletters<br>• Number of press releases<br>• Social media followers<br>• Videos and blog articles views<br>• Participation in events<br>• Participation in training<br>• Participation in blog<br>• Number of schools and countries joining CONNECT<br>• Degree of satisfaction of schools<br>• Activities that give recognition to recognized schools (communication actions per schools)<br>• Activities to disseminate with influential leaders (founders, policy makers, ...)<br>• Dissemination activities shared with other OS projects<br>• Number of badges of participation given to schools (and other recognition-related indicators from WP1) | • Teachers and students that have participated in implementing Science Actions and who answered the pre and post questionnaires on science capital<br>• Students that implemented Science Actions but who did not fill in the questionnaires on science capital<br>• Teachers' and students' perception of the importance of learning through activities that contribute to solve real problems with real data<br>• Teachers' and students' perception of the importance of learning through activities that involve the community<br>• Teachers' and students' perception of the importance of learning through interaction with scientists and STEM professionals<br>• Teachers' and students' perception of the importance of learning by doing research and experimentation<br>• Increase in students' science capital (also among disadvantaged students)<br>• Families' interest in science and STEM careers (perceptions of students)<br>• Teachers' perception of curriculum coverage<br>• Expectations of Long-term improvement of curricula skills to apply the scientific method with open schooling<br>• Degree of satisfaction of teachers, students and families during CONNECT activities | • Teacher's satisfaction regarding their cooperation with the coach (obtained through questionnaires and focus groups)<br>• Qualitative evaluation of the relationship between teachers and their coach<br>• Quantitative data of teachers' and students' dropouts<br>• Number of coachers<br>• Number of teachers being coached<br>• Number of science actions submitted for best practices as output of partnerships |


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

## 7. 6Timeline

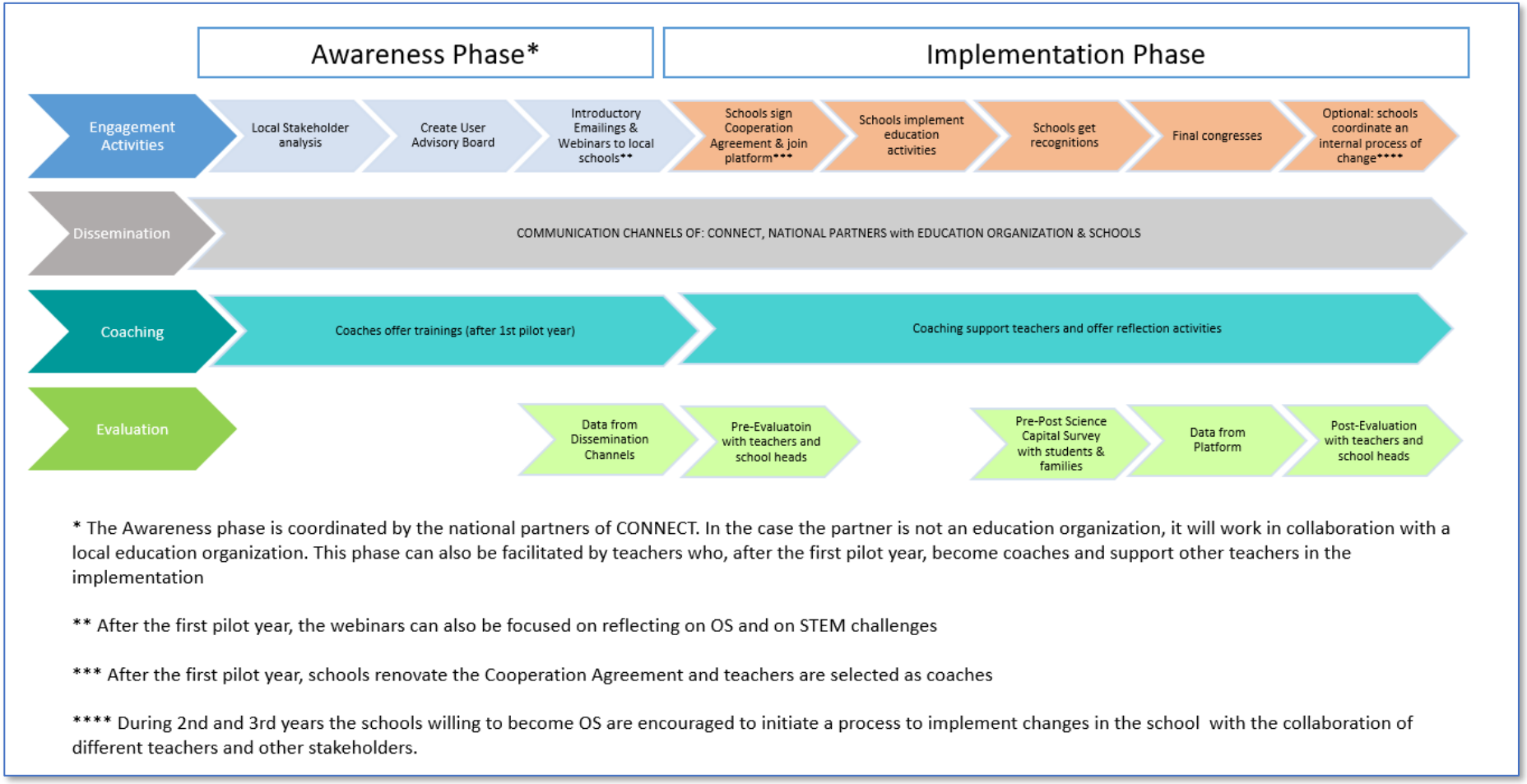


*Figure 4. Summary of the Timeline of the Engagement Action Plan for each academic course*

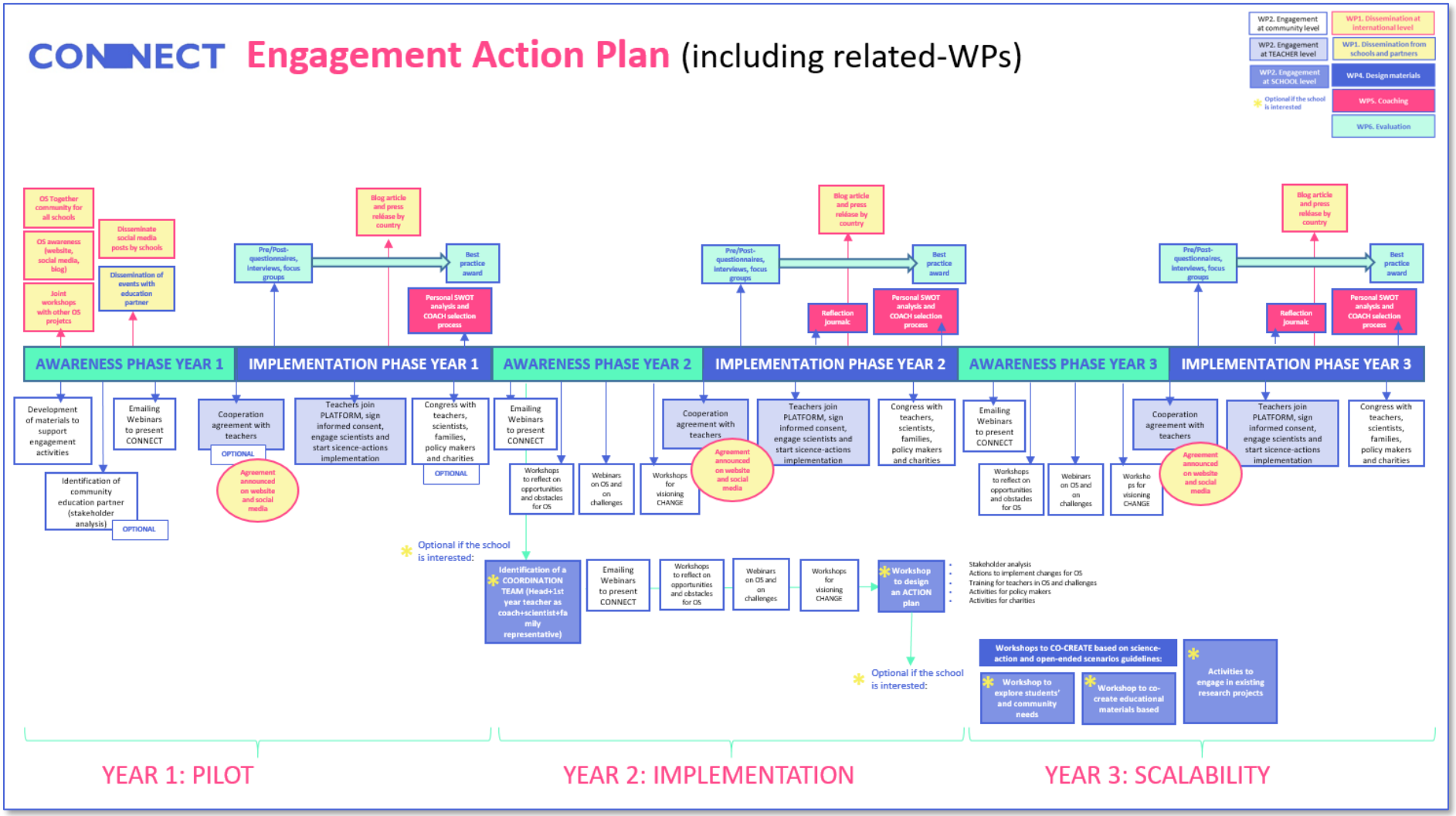


*Figure 5. Timeline of the Engagement Action Plan (with detail of the interventions of all related-WPs)*



This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814

# 8. References


Archer, L., Mann, A., & Stanley, J. (2014). Understanding employer engagement in education. London: Routledge.NCCPE Edge Tool (2021). Retrieved 2 April 2021, from https://www.publicengagement.ac.uk/sites/default/files/publication/nccpe_edge_tool.pdf

EU. (2015). *Science Education for Responsible Citizenship. Report to the European Commission of the expert group on science education*. Luxembourg: Publications Office of the European Union.

Fullan, M. (2000). The return of large-scale reform. Journal Of Educational Change, 1(1), 5-27. doi: 10.1023/a:1010068703786

İpek, Ö., & Karaman, A. (2020). Systemic Change in a Higher Education Institution: Inquiring into Organizational and Instructional Transformation. *Systemic Practice And Action Research*, *34*(1), 109-125. doi: 10.1007/s11213-019-09516-6

Kaptan, K., & Timurlenk, O. (2012). Challenges for Science Education. *Procedia - Social And Behavioral Sciences*, *51*, 763-771. doi: 10.1016/j.sbspro.2012.08.237

Klassen, P., Kupper, F., Rijnen, M., Vermeulen, S., & Broerse, J. (2014). *Policy brief on the state of the art of RRI and a working definition of RRI*. Deliverable 1.1 RRI-Tools Project. Retrieved from http://www.rri-tools.eu/workplan-deliverables

Living Lab for Health at IrsiCaixa (2020), Promotion of healthy and sustainable diets: Roadmaps for change; FIT4FOOD 2030 Tool.

Living Lab for Health at IrsiCaixa (2020), Promotion of healthy and sustainable diets: where is change needed? FIT4FOOD2030 Tool.

Living Lab for Health at IrsiCaixa (2020), Promotion of healthy and sustainable diets: Why is it so complex?; FIT4FOOD2030Tool.

Reigeluth, C., & Joseph, R. (2010). The Systemic Change Process in Education: A Conceptual Framework. Contemporary Educational Technology, 1(2). doi: 10.30935/cedtech/5968

Van der Meij, M.G. (2020). Co-designing educational modules for food system transformation; FIT4FOOD2030 tool

Van der Meij, M.G. (2020). Stakeholder analysis for food system transformation; FIT4FOOD2030 tool

Ward, S. (2021). What Is a Vision Statement?. Retrieved 30 June 2021, from https://www.thebalancesmb.com/vision-statement-2947999

White, K., Beach, A., Finkelstein, N., Henderson, C., Simkins, S., Slakey, L., Stains, M., Weaver, G., & Whitehead, L. (Eds.). (2020). Transforming Institutions: Accelerating Systemic Change in Higher Education. Pressbooks. http://openbooks.library.umass.edu/ascnti2020/



This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 818184

# Appendix

The following appendixes are editable documents available for partners and other stakeholders who will implement the Engagement Action Plan. Link to these resources are provided below:

I. Email template to contact schools

II. Letter template for introducing CONNECT to schools

III. Slide presentation template for presenting CONNECT
IIIa. Teaser of CONNECT presentation (“draft” version)
IIIb. CONNECT presentation (long version)

IV. Cooperation agreement

V. Guideline to identify key stakeholders to engage in CONNECT

VI. Workshop to reflect on problems and opportunities for OS: *“Pros and cons to improve (science) education through Open Schooling”*

VII. Workshop to design a desired future vision when the school has become an OS: *“Visioning Change in (science) education”*

VIII. Workshop to design a roadmap for change: *“Developing an Action Plan for Change in schools for innovating in (science) education”.*

IX. Visual Thinking Tool: components of the education system


This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872814

EXUS
Greece
www.exus.co.uk

OU
Uk
www.open.ac.uk

DBT
Denmark
www.tekno.dk

IRSICAIXA
Spain
www.irsicaixa.es/en/livinglabhealth

MSc
Uk
www.shop.masteryscience.com

VUT
Romania
www.valahia.ro

LOBA
Portugal
www.loba.pt

UNEB
Brazil
www.portal.uneb.br

PUCPR
Brazil
www.pucpr.br

RDE
Greece
www.pdekritis.gr

info@connect-science.net

www.connect-science.net

This project has received funding from the European Union's Horizon 2020 Research ad Innovation Programme under Grant Agreement No 872814