Equipping the Next Generation for Active Engagement in Science

DELIVERABLE D6.11:

Transform Dissemination & Networking Plan

Project Acronym: ENGAGE

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DOCUMENT HISTORY

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CONTENTS

1. EXECUTIVE SUMMARY

D6.11, “Transform Dissemination & Networking Plan” provide the basic information needed to launch the Transform phase of the Engage project. It concentrates on the dissemination and networking activities linked with this phase. The document strongly relies on the work done by UB and their D5.9 concerning the “Adapt Dissemination & Networking plan”, of which is the natural prosecution into the final stage of the project.

Key Transform objectives are:

- to propel a proportion of teachers from the ADAPT stage to reach the 'transformational' stage through experiences such as **co-creation of resources**, **training other teachers** or mentoring.
- to encourage deeper, sustained reflection about teacher practice and the nature of **science**, its applications and implications, and its **importance for students' futures** and **society**.
- To equip these teachers as the **'go to person**' in a science department, who can support colleagues in developing their own RRI practice.

In relation to the 3 Engage actions, main Transform benefits are:

- Materials: projects with student-scientist collaboration
- Online courses: creation of personalized RRI curriculum materials
- Online community: Take leadership role in the community.

Transform materials are named “projects”. They are more open ended, articulated and time intensive than previously developed materials, and will allow teachers to frame whole topics within RRI issues. Teachers will want their students to create a meaningful output, and we will encourage and reward the effort by publishing finished presentation on the Engage Knowledge Hub and showcasing them in national events in Autumn 2016.

WP3 will develop Transform ‘projects’ guidelines. These will be piloted in 4 countries (UK, Spain, Germany and France) under coordination of WP6. Each country will then develop at least 1 Transform project, so that they will build a “bank” of 20 projects.

In addition to the extensive analysis developed in D5.9 for the Adapt phase, Transform specific aspects relevant for the dissemination and networking strategy are:

- Involvement of relevant stakeholders in the process;
- Development of an open-ended, project based pedagogy, mainly targeting “expert” RRI teachers
- Focus on RRI issues: role of media, ethics, socially relevant positive or negative impacts of scientific research, the nature of science in society, etc

As a consequence, dissemination efforts will need to take into account 4 main focus:

1. Relevance of networking with respect to diffusive dissemination. This will imply a specific strategy for the involvement of:

- formal teacher networks;
- teachers blogs and community leaders;
- existing RRI or IBSE related programmes.

2. Building of partnerships with relevant stakeholders. These will potentially act as content providers, dissemination agents, target groups, critical friends or a combination of those. Key stakeholders to be involved are:

- Scientists
- Research organisations
- Science museums/science centres and informal science education institutions
- The media and journalists
- Educational institutions
- Industries/the business sectors.

This documents provides some general feature concerning the involvement of each stakeholder. An executive version of it, which will incorporate the answers to a questionnaire distributed to partners, will translate strategic consideration in practical tips, based on examples provided by partners. Although it is obviously impossible that every partner will engage with all the stakeholders, every partner will need to take them into consideration, analyse locally the benefits of involving them, sketch a strategy to involve them identifying the main obstacles, and establish a priority.

3. Quality of the teacher projects as dissemination flags. The dissemination strategy of Transform is strongly based on the quality of the teacher engagement and the Transform materials and online activities. These need not just be advertised, bur they need to become themselves the advertisement of the quality of the project.

4. Role of expert teachers in dissemination. Transform involve RRI expert teachers, that will need to be empowered to act as dissemination agents of the overall Engage products.

Transform monitoring activities will strongly rely on Adapt monitoring activities, simply adding a few specific elements concerning the teachers and students projects, and the involvement of the stakeholders until the end of the Engage project.

2. OVERVIEW OF TRANSFORM

According to the DoW, the main objectives of the TRANSFORM phase are:

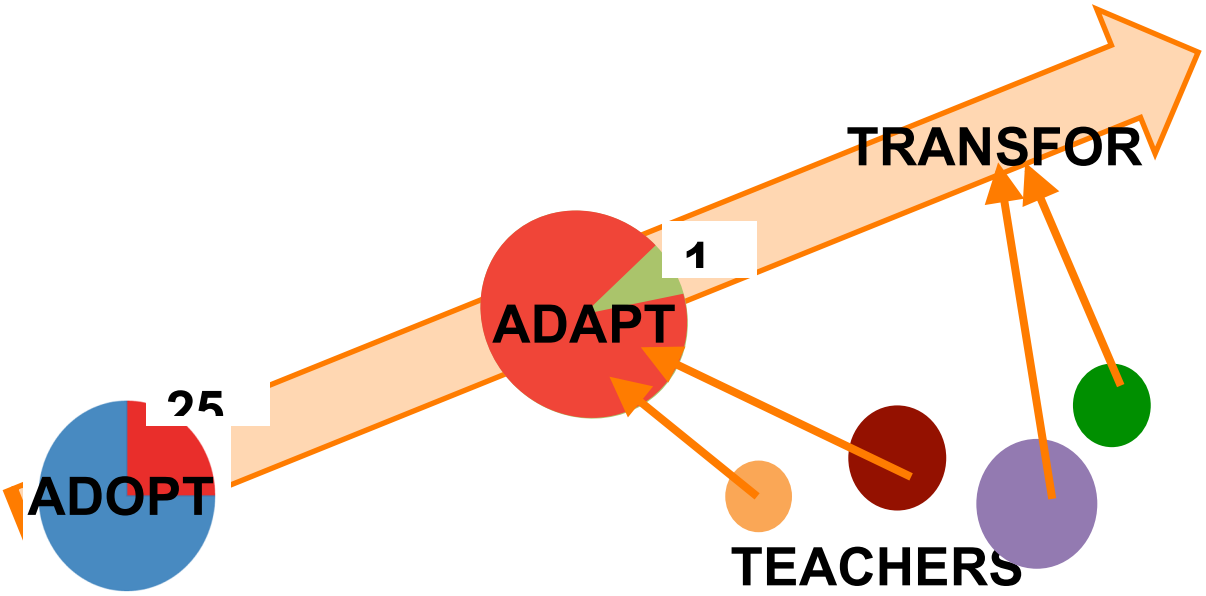
- to propel a proportion of teachers from the ADAPT stage to reach the 'transformational' stage through experiences such as **co-creation of resources**, **training other teachers** or mentoring.
- to encourage deeper, sustained reflection about teacher practice and the nature of **science**, its applications and implications, and its **importance for students' futures** and **society**.
- To equip these teachers as the '**go to person**' in a science department, who can support colleagues in developing their own RRI practice.

2.1. Quantitative targets

From a quantitative perspective, the following targets have been defined:

	YEAR 1			YEAR 2					YEAR 3							
	ADOPT			ADOPT			ADAPT		ADOPT			ADAPT		TRANSFORM		
Partner	1	2	3	1	2	3	1	2	1	2	3	1	2	1	2	4
FAU	700	25	30	700	25	30	400	25	1400	25	30	400	25	80	25	25
SHU	650	25	30	650	25	30	300	25	1300	25	30	300	25	60	25	25
TRA	600	25	30	600	25	30	300	25	1200	25	30	300	25	60	25	25
UB	450	20	25	450	20	25	230	20	900	20	25	230	20	60	20	20
VUT	200	20	20	200	20	20	100	20	400	20	20	100	20	20	20	20
FOR	100	15	20	110	15	20	60	15	220	15	20	60	15	20	15	15
WZ	80	15	15	80	15	15	40	15	160	15	15	40	15	20	15	15
HIV	50	15	15	50	15	15	30	15	100	15	15	30	15	15	10	10
DICS	40	10	10	40	10	10	20	10	80	10	10	20	10	10	5	5
LEU	40	10	10	40	10	10	20	10	80	10	10	20	10	10	5	5
UNI	20	10	10	20	10	10	10	10	40	10	10	10	10	10	5	5

Key: 1 = Materials usage (new teachers/year 2= Online course participation (teachers per year), 3= Workshop attendance (teachers per year), 4 = Mentoring in community

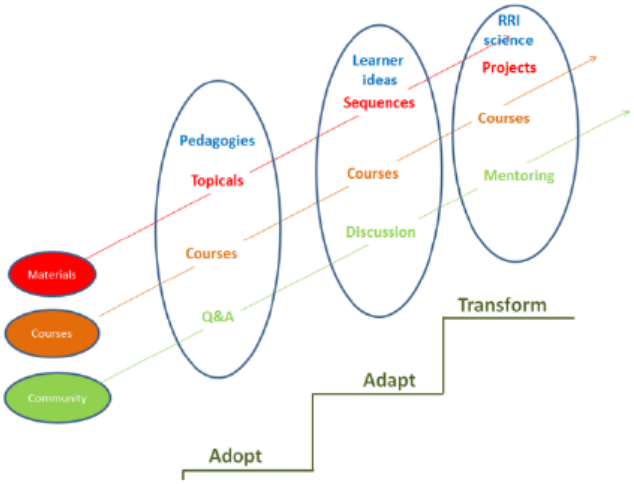


It is estimated that 10% teachers in the ADAPT will propel to TRANSFORM and that at least 25% of teachers using the TRANSFORM ENGAGE programme will have made a significant positive shift in at least 4 of the 5 'dimensions of RRI teaching' model.

Based on the analysis of first phases of the project, however, it is clear that the TRANSFORM phase can be considered appealing also for teachers that have a good knowledge of IBSE principles and are engaged in teaching contemporary science and the social implications of scientific advancement, even if they did not go through the first two steps of ENGAGE. The participation of these teachers will in any case be encouraged, as they would contribute to the ENGAGE general objectives.

2.2. Qualitative targets

The TRANSFORM phase represent a shift in teacher professional self-image for RRI teaching to be part of their repertoire. They have become experienced having gone through the Adopt and Adapt programme, and have started to engage in a Transform Project (Materials) or online course. They will play the role of mentor in the ENGAGE community, guiding more novice teachers who are working on the earlier stages. They are becoming 'expert RRI teachers'.



2.3. TRANSFORM features

Likewise the other two steps of ENGAGE, in order to achieve the TRANSFORM quantitative and qualitative targets, 3 strategies will be used: a) materials, b) online courses and c) community.

Strategy	Adopt		Benefits of Adapt		Benefits of Transform
Materials	30 min. exercises, apply an already taught idea	→	Teach complete topics	→	Project with student-scientist collaboration
Online courses	Try easy teaching strategies	→	Secrets of greater student understanding	→	Create your own RRI curriculum materials
Online community	Access information about Materials	→	Interact with '*expert RRI teachers*'	→	Take leadership role in community

Materials for the Transform stage ("Projects")

Transform Materials will be more open-ended Projects which allow teachers to teach entire topics within the context of a socio-scientific issue. They will also get teachers and students closer to the science being done, through interaction with the scientists conducting the research.

The materials for the TRANSFORM will be developed by SHU and will include a series of guidelines for "projects", as detailed below. The basic features of the TRANSFORM materials – named project – are detailed in the DoW as follow:

> The idea of the Project is to mimic the conditions under which students will meet science issues beyond school - the most 'authentic' way to learn. Research on scientific literacy suggests that people are most likely to learn difficult science ideas 'when they need to communicate with experts, or take action' (Ryder 2001). Learning from experts is often used in informal science education, and in ENGAGE we will adopt this method for our Projects, using experts on the nature of science - scientists and science communicators ('RRI science experts'). This is the unique feature of Projects - both teachers and students will interact with 'RRI science experts'.
>
> Projects will offer schools a choice of how to interact with scientists. Some will be easy like students interrogating a video of the scientist answering questions about the implications of their research. Some will involve more direct contact, like visits to research institutions, direct meting with researchers, etc.

Also, Transform materials should encourage and facilitate interactions with other RRI relevant stakeholders, namely science centres and museums and other informal science education institutions; journalists and the media; the innovation and business sectors.

The establishment of these contacts and practices, weather they will lead to active involvement or just in guidelines and instruments to support future involvement, is a specific goal of Transform.

Partners will each select their own RRI science experts.

Compared to the more structured materials of ADOPT and ADAPT, TRANSFORM. Projects will give students more choice in how they explore an issue. They are designed for students who have already experienced Topicals (ADOPT) and Sequences (ADAPT), and have learned some of the skills they need to conduct their own inquiry.

Projects will give teachers at the Transform phase appropriate scope to exercise creativity. The materials will not prescribe but stimulate and support with a short inspirational scene-setting video or image animation and a series of 'teaching ideas', more than mapped out lesson. The teachers' notes will show the learning principles more than the details, to aid customisation. We expect that students will produce rich, creative outputs from their in-depth inquiries. For instance they could present their views in a debate, or produce a short YouTube video, with commentary. The learning benefit of such outputs is that it requires students to combine knowledge and skills and judgment.

The knowledge for teachers at the Transform stage are challenging often unfamiliar ideas about the nature of evidence, how science and technology and society interact, and how ethics and other values influence decision making. Such ideas are ideally suited to learning directly from RRI experts - scientists and science communicators who they will partner with, not abstractly from materials.

TRANSFORM materials will take the following structure:

- Show how to deliver a science content topic like genetics through an issue like like ‘should we release GM mosquitoes?’
- provide a structure for integrating the RRI processes with the content
- build an engaging storyline around the issue, leading to two questions
  a. how does the science/technology work? leads to the science content
  b. is it a good idea/right ? leads to the RRI processes

  Provide detailed lesson activities where the knowledge is unfamiliar to teachers, and a general lesson plan where the knowledge is familiar to teachers
- encourage interaction with scientists, the media, and informal science education opportunities
  a. guidelines and direct contacts for working with local scientists and/or visiting local scientific institutions

b. guidelines and direct contacts for working with local science centres or other local scientists and/or visiting local scientific institutions

c. guidelines to use the media as a source of information about RRI related issues concerning specific topics

d. on line pre-prepared e.g. video interview / web page

e. on-line live e.g. email Q&A or web conference

- Encourage students to create various kinds of 'authentic product' where they present their points of view and evidence, such as a video or web report. We will show how these can be valued with assessment and provide incentives for teachers to publish the outputs on our Knowledge Hub.

As leader of Work Package 3 (RESSOURCES), SHU will create a template for all the main elements and requirements of a TRANSFORM project, to be used by other partners in creating their own Projects. Each country will develop at least 1 Transform project. These projects will be such as to be relevant to other countries, so that they will build a "bank" of 20 projects.

The projects can build on existing relationships of each partners with local scientists and other relevant ENGAGE stakeholders (see description below), or be built on existing Engage contexts.

4 countries will develop pilot Transform projects in Autumn 2015: UK, Spain, Germany and France.

TRANSFORM Materials will allow teachers to frame whole topics within RRI issues. This will take a greater degree of commitment than ADOPT or ADAPT, and occupy more curriculum time. Teachers will want their students to create a meaningful output to justify this time, and we will encourage and reward the effort by publishing finished presentation on our Knowledge Hub.

We will further showcase and publicise teachers' success with ENGAGE materials through an RRI festival which each country will host in the final term of the project, Autumn 2016. We will invite students from schools who have been using TRANSFORM materials, to present the projects they have created. These will be high profile events hosted at partner science/discovery centres.

Community

The TRANSFORM community strategy will largely be determined by the outcome of the ADAPT stage community strategy. It is envisaged that no specific TRANSFORM community strategy (i.e., identifiable as such by the end users) will be developed, but rather specific focal point will be developed on the backbone of the ADAPT phase.

More specifically, the presence of RRI champions teachers and example coming from ENGAGE expert teachers (weather newcomers or following the ENGAGE pathway) will be used as much as possible as instrument to keep the community alive and challenging.

2.4. TRANSFORM calendar

Development of pilot TRANSFORM projects, Sept-December 2015

Development of TRANSFORM project, Jan-Sept 2016

RRI Festivals to showcase TRANSFORM , Aug-Nov 2016

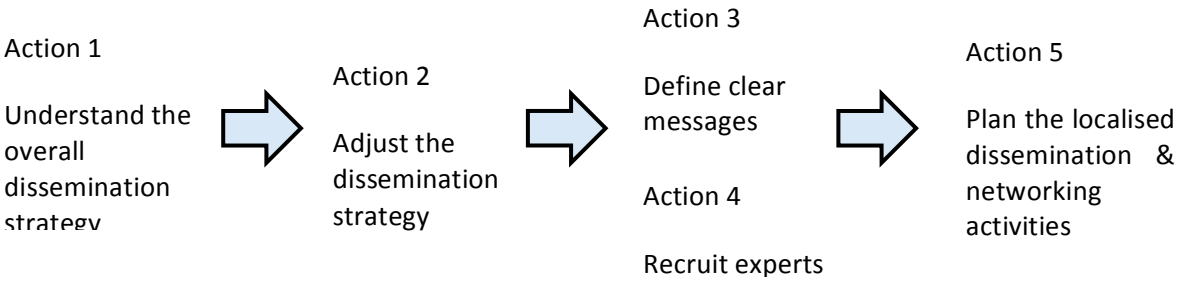
3. STRATEGY FOR TRANSFORM DISSEMINATION AND NETWORKING PLAN

Most of the key issues for dissemination of the Transform phase are similar to the one highlighted for the ADAPT stage in **deliverable 5.9**, that we are following closely in this document. Except in those cases where correction will need to be introduced, all main features characterising the progression from ADOPT to ADAPT will also need to be taken into account when preparing the progression from ADAPT to TRANSFORM.

Therefore, we will provide a short summary of D5.9 methods and conclusion, pointing to the full D5.9 document for details, while in the following chapters we will concentrate on the specific features of TRANSFORM that involve a different approach and/or a different dissemination strategy with respect to the ADAPT phase.

3.1. Summary of D5.9 guidelines

D5.9 suggest a series of action leading to locally adapted strategy for ADAPT. The same will be adopted for the TRANSFORM phase.



After consulting all partners, D5.9 points out the following opportunities in the transition to ADAPT, that we assume remain true in the transition to TRANSFORM :

- Teachers want to use RRI to teach science in a deeper and more flexible way
- Participating in CPD programmes contributes to teachers' promotion

It is expected that teachers ready to engage in the Transform phase do not really need our support for their personal career, but rather find additional ideas, support and recognition to sustain a progression already started independently.

Similarly, in terms of the three main ENGAGE strategies (materials, online courses and community), the main features identified in D5.9, section 4.1, for the transition to ADAPT remain valid in the case of the transition to TRANSFORM, although with several specific elements which will be detailed in the following chapters.

For materials, this translate in matching specific teacher's need:

- Promote a new approach to students' scientific competency
- Enable competency-based teaching

For the on-line course, the main identified success factors are to be **convenient for teachers, efficient for the consortium,** and acknowledge specific **teachers' skills which will help them to progress in the online course,** as in most countries teachers appear to be ready to use on-line resources, training, and have a reflective posture on the preparation of their own lessons.

Several threats concerning the online approach have been identified by partners (see D5.9, section 4.2) : the same threats remain unchanged also for the Transform phase.

For the community factor, the main success factors identified are: the offer of valid, interesting and reliable material, the promotion of interaction among teacher by building confidence, sharing resources among teachers, allowing the possibility of discussing them, with experts able to answer to their questions.

In the implementation of the localized dissemination plan, D5.9 identify 2 main goals: "motivate participants to download the ADAPT materials, enrol in the online courses or participate in the community", and "once they have joined this stage, keep teachers active in it".

In the case of the Transform stage, due to the smaller number of teachers involved, the second goal become prominent, and complemented by the need of involving other stakeholders in the projects.

D5.9 also provide a very useful set of indicators to identify motivated teachers and upsell ADPAPT (**D5.9, section 5.1**). We suggest the use of these same tables for the transition to Transform. We expect that the quality of the content and the valuing of the teachers competences are factors that will be increasingly important in the Transform with respect to the Adapt phase.

Finally, D5.9 develops a set of indicators for keeping teachers actives (D5.9, section 5.2) : these are less applicable in the Transform phase, as all teachers involved in the Transform phase are intended to be active by definition. Those indicators will therefore not be taken into account.

3.2. Key characteristics of the Transform phase.

Key specific features of transform with respect to the Adopt and Adapt phases are the following:

- Involvement of relevant stakeholders in the process;
- Development of an open-ended, project based pedagogy, mainly targeting "expert" RRI teachers
- Focus on RRI issues: role of media, ethics, socially relevant positive or negative impacts of scientific research, the nature of science in society, etc

The Transform phase is also characterised by lower number of teachers involved, with a higher engagement, potentially in projects that are innovative and stand out form "teaching as usual".

These observations translate in a series of specific strategic features for dissemination of the TRANFORM phase. These apply both to the progression of ADAPT teachers into TRANSFORM phase, or to the engagement of new teachers for the TRANSFORM phase.

1. **Relevance of networking with respect to diffusive dissemination**
    a. In the Adopt stage the main objective was to involve a high number of teachers, regardless of their level of engagement in RRI teaching, their teaching style, etc. As a consequence, greater attention was given to how many teachers where reached by the message, regardless of their specific characteristics.
    b. The transform stage needs to carefully target the communication, so to involve teachers that are willing to engage in the "project" – Transform pedagogy. This is important on one hand because these teachers are the one that will be protagonist of the Transform phase, but also because the long term impact and sustainability of the overall Engage schemes largely depends on their engagement. In fact, it is highly probable that further adoption and use of ENGAGE's Adopt and Adapt materials will highly depend on experienced teachers (Transform teachers) demonstrating the good quality of the materials and advertising for it.
    c. As detailed in the following, networking dissemination strategy need to follow two pathways: The first one will be targeting engaged teachers through teachers associations, pre-existing programmes, blogs, etc.. This will mainly concern teachers that have already participated in the previous stages of the ENGAGE pathways, but also expert teachers and in particular teachers with influential roles, acting as community leaders. The second focusing on relevant stakeholders with whom teachers are in contact or that can increase the visibility and the appeal of the participation in the Engage programme.

2. **Quality of the projects as dissemination flags**
    a. The Transform phase of Engage is characterized by innovative projects. With respect to the Adopt and partially the Adapt stages, they are not ready-made teaching materials, but

experimental activities based on contemporary research and active involvement of teachers, learners and experts at the same time. These features make Transform material particularly appealing for the various Transform stakeholders, in particular teachers' networks and groups, Museums and Science and Centres, the media, etc.

b. The specific examples and projects, their content, the adopted methodologies should become at the hearth of the dissemination strategy.

3. **Role of expert teachers in dissemination**
   a. Transform strongly rely on expert teachers for the development of materials. The same teachers can and should paly an active role on dissemination, and this should be supported and facilitated by partners.

3.3. Transform strategy for dissemination

In order to design the TRANSFORM strategy a short questionnaire was distributed to all partners.

As a very extensive and deep questionnaire was already collected by the University of Barcelona to design the strategy for the progression from ADOPT to ADAPT, providing all the main relevant information needed also for this second stage, it was decided to reduce the questionnaire to a minimum, focusing on the key original TRANSFORM features highlighted above. It was also decided to adopt a "learning by examples" approach, asking partners to point out relevant experiences in which they were (or still are) directly involved or that they are aware of in their countries, that can serve as useful guidelines for other partners.

The questionnaire is reported in the Appendix.

Questionnaires are being filled in by partners at the moment of submission of this deliverable. In the following, we develop the main features that will be validated, corrected or complemented by the partners answering the questionnaire, leading to an executive version of the dissemination strategy for Transform.

Mobilisation of existing teachers networks and science education projects

The engagement of teachers that progressed from ADOPT through ADAPT or of already expert RRI teachers in the TRANFORM stage, beyond the primary training objectives, is intended also as mean to reach the wider

community of science teachers. This will need to be planned starting from the early contacts with Transform teachers, in order to give value to the whole ENGAGE teachers community (which is in itself quantitatively very important at this stage), and maximize the impact on larger teacher communities.

The main channels through which this can be achieved are mainly influential teacher blogs and community leaders; formal and self-structured teacher organisations; existing national or European projects on IBSE and RRI. The following table will be filled in based on partners' answer, and incorporated in the global strategy.

- Blogs and community leaders
    - Reason of interests
    - Examples from partners
- Teachers organisations
    - Reason of interests
    - Examples from partners
- Existing projects
    - Reason of interests
    - Examples from partners

Building of partnerships with relevant stakeholders

An intelligent and well-planned involvement of stakeholders is of uttermost importance within the TRANSFORM phase and more generally for the legacy of ENGAGE.

In fact, based on the way we will be able to engage them, stakeholders will act as **content providers**, **dissemination agents**, **target groups**, **critical friends**, or a combination of those. Stakeholder analysis shows that in order to obtain a real stakeholder engagement is very important not to separate these different roles, but on the contrary to maximize the synergies.

The main stakeholders to be involved are:

- Scientists
- Research organisations
- Science museums/science centres and informal science education institutions
- The media and journalists
- Educational institutions
- Industries/the business sectors.

Although it is obviously impossible that every partners will engage with all the stakeholders, it is important that every partner take them into consideration, analyse the benefits of involving them, sketch a strategy to involve them identifying the main obstacles, and establish a priority among them. Only a subset of those

stakeholders will be then actively engaged, also in order to maximize the quality with respect to the quantity of the interactions.

In the following, we provide the main interest of each stakeholder for our project as communicated to the partners, and focus on the role they can in principle play in the TRANSFORM dissemination strategy. Section 2.4 will summarize useful practical guidelines for the engagement of each stakeholder, and the local strategies.

- **Scientists**
    - They are expected to link directly with teachers to develop common programs, or to be contacted by teachers to ensure that "science in its making" is included in the projects;
    - They should be selected according to their expertise on specific, ENGAGE relevant topics (that is, topics treated in the ENGAGE materials); and according to their awareness of RRI issues. (Note: it is important to acknowledge the fact that not all scientists are aware of RRI principle, neither they are interested or able to frame their knowledge in a RRI context. Scientific excellence is not therefore the only criteria needed for the identification of scientists to be engaged as ENGAGE stakeholders).
    - As an indication, Transform will complement its material, courses and community with practical guidelines on how to engage with different stakeholders, and actual lists of, e.g., scientists and scientific institution expert in specific topics, open to meet teachers and students welcoming school visits, etc.
    - As for the online activities, partners will organise several ways to put a limited number of scientists in contact with schools. This might include:
        - Web conference/email link - this is only for the few, for logistical reasons
        - Web page information
        - Video of scientist/expert answering questions about RRI issues

  Dissemination added value: provide credibility to the project, and thus gain the trust of teachers; circulate information about the project in the scientific community, thus raising the attention toward RRI teaching; provide extra motivation to teachers for engaging in innovative pedagogies and RRI.

- **Science museums / science centres**
    - They are expected to contribute to ENGAGE material production through their informal science education expertise
    - They are expected to contribute to ENGAGE material dissemination by including ENGAGE advertisement in their communication or in local activities;
    - They are expected to engage in the organisation of an online event (webinar) and or a local event.

Dissemination added value: they often organise science education workshops, trainings and events, and are in contact with motivated teachers; they can showcase results of ENGAGE projects; they have newsletters/mailing lists that could talk about ENGAGE materials; they have very visited websites, often in search of valuable content; …

- **Research organisations**
  - They are expected to support scientists in their participation in Engage
  - They can be multiplier of selected ENGAGE materials for outreach purposes
  - They are target groups for Engage's goal of producing institutional change

Dissemination added value: they can provide institutional legitimacy to ENGAGE materials; the occasion of working with leading scientific institutions can be an attractive factor;…

- **The media, media experts and journalists**
  - They are expected to participate in some teaching activities, as active participants or as consulted expert, in order to ensure the understanding by teachers and students of the mechanisms governing science in the media
  - They will become aware of innovation in science education
  - They might eventually contribute to the dissemination of ENGAGE results

Dissemination added value: they can quote ENGAGE materials in their supports; they often have high social network activity (twitter in particular) that can to be mobilized; …

- **Educational institutions**
  - They are a target group for Engage's goal of producing institutional change
  - They are dissemination agents for Engage material (all three stages).

Dissemination added value: institutional change is a key goal of Engage strategy at different levels: school, education policy makers, etc.

- **Industries / the business sector**
  - They are expected to help focus on innovation issues, and industry based R&D (both on their positive and critical aspects)
  - They are expected to contribute (directly or consulted) to the Engage transform materials and projects.
  - They will be sensitized to RRI issues as an indirect effect of participating in Engage

Dissemination added value: they can add a modern and innovative twist to ENGAGE proposal; they can be useful to raise the interest of journalists and the media (thus indirectly helping dissemination); they can see ENGAGE as a useful tool to raise the debate about issues concerning them, and thus disseminate directly…

Quality of the projects as dissemination flags

One of the role of the Transform phase is to demonstrate the quality, attractiveness, efficacy, of the overall ENGAGE scheme. In fact, it will be presented as the result of a progression through the different steps, and thus be perceived as a final goal by teachers engaged in the process. The attractiveness of this goal is essential fro keeping the momentum of ENGAGE. This is true with respect to other teachers involved, but also in the links with the different stakeholders detailed above.

In order to fulfil this role, the quality of the Transform materials (projects) and the online activity is the key issue. In other words, for the Transform phase it is useless to build a communication and recruitment campaign *on top* of the ENGAGE materials, the objective being rather to make the ENAGGE materials themselves the instrument of dissemination.

The following question will therefore need to be treated in detail: what makes a teaching project appealing, in a dissemination perspective, for a) other teachers; b) education institutions; c) science centres; d) scientists and research institutions … The pilot phase of TRANSFORM will need to answer this in relations with the specific Engage materials developed in the previous stages ("Topical" and "Sequences") and under development for the Transform stage ("Projects").

RRI keys as dissemination opportunities

4. Local dissemination strategy for TRANSFORM

We asked all partners to answer a questionnaire concerning their national dissemination strategy for the TRANSFORM stage (annex 1). They provided ideas, clues and examples based on their local experience that can be useful to designing the global TRANSFORM dissemination. The main focus of the questionnaire concerned 1) Stakeholder mobilisation and 2) Innovative pedagogies

The following elements summarize what came out of these national analyses.

4.1. Stakeholder mobilisation

Depending on their identity, stakeholders act as content providers, dissemination agents, target groups, or a combination of those.

For each stakeholder, we asked all partners to provide a list of persons/institutions that will be potentially engaged, and a few line describing the intended strategy.

Each partner has identified stakeholders that they wanted to involve in the TRANSFORM phase. If they all have different strategies it's clear that all partnerships with stakeholders have to be planned in a collaborative way with them.

1.1 Scientists/Research institutions

Scientist are expected to link directly with teachers to develop common programs, or to be contacted by teachers to ensure that "science in its making" is included in the teaching strategy.

They should be selected according to their expertise on specific, ENGAGE relevant topics (that is, topics treated in the ENGAGE materials), and according to their awareness of RRI issues.

Research institutions are expected to support scientists in their participation in Engage.

They can be multiplier of selected ENGAGE materials for outreach purposes.

They are target groups for ENGAGE's goal of producing institutional change.

The different strategies that ENGAGE partner will adopt are:

- Scientists as mentor for teacher (Israel and Romania)
- Scientists as co-creator of MOOC and activities
- Scientist as expert in roundtable with teachers
- Scientist as contact point for teacher

Remarks: Research institute on a specific scientific field can be involved. For example, Cyprus is planning to work with a Neuroscience institute.

1.2 Science centres and science museums

Science centres and science museums are expected to contribute to ENGAGE material production through their informal science education expertise.

They are expected to contribute to ENGAGE material dissemination by including ENGAGE advertisement in their communication or in local activities.

They are expected to be engaged in the organisation of an online event (webinar) and or a local event.

The different strategies that ENGAGE partner will adopt are:

- Organise a learning pathway using ENGAGE and museums resources (France)
- Organise exhibitions of student's productions (Romania, Israel)
- Showcase ENGAGE event
- Join museums events (eg. Researchers Night)
- Co-create activities

1.3 Media and its experts/Journalists

Journalist and media experts are expected to participate in some teaching activities, as active participants or as consulted expert, in order to ensure the understanding by teachers and students of the mechanisms governing science in the media.

They will become aware of innovation in science education.

They might eventually contribute to the dissemination of ENGAGE results.

The different strategies that ENGAGE partner will adopt are:

- Publication of articles in specialise media (e-learning, education, science)
- Publication of press release for the local press

1.4 Industries and business companies

They are expected to help focus on innovation issues, and industry based R&D (both on their positive and critical aspects).

They are expected to contribute (directly or consulted) to the Engage transform materials and projects.

They will be sensitized to RRI issues as an indirect effect of participating in Engage.

Few partners have planned to involve industries

The different strategies that ENGAGE partner will adopt are:

- Organise debate with industry experts
- Included industry resources (UK) and experience (Israel) to ENGAGE material

4.2. Innovative pedagogies

We also asked all partner to share their experience on relevant RRI oriented teaching practices you were involved in or are aware of, and help us identified what were the elements that made it successful in appealing to targeted teachers and possibly other stakeholders.

Lithunia partners suggested to use the methodology of L. Bianchi at the transform stage. The methodology of L. Bianchi (2004) provides the basis for the development flexible, collaborative partnerships between teachers and researchers.

Other partner suggested the use of videos for dissemination and the participation to science fairs.

5. Monitoring guidelines

The monitoring guidelines adopted by UB for the ADAPT stage will be extended to the Transform phase under supervision of Traces, with some minor modifications.

A table monitoring the planned dissemination activities will be put in place. This will include not only teachers involvements, as in previous phases, but also links, contacts, active collaboration with the stakeholders outlined in the previous sections.

The ADAPT monthly report will be extended to include also TRANSFORM information, so that partners will have one single monthly report to produce. TRACES will associate with UB for ensuring the more efficient execution of these tasks.

In addition to the ADAPT indicators (see D5.9, section 6) – that will be applied to the TRANSFORM teachers as well - the following indicators will be specific to TRANSFORM:

- Original projects, or adaptation of ADOPT or ADAPT materials, realized by TRANSFORM teachers.
  A short (1-2 paragraph) English summary of the teacher contribution is required from partners. Longer, detailed descriptions of particularly high quality or successful contributions will be of course welcomed!

- Established contacts or collaborations with:
  - Scientists and/or research institutions
  - Science centres, science festivals or other informal science education institutions
  - Media, journalists, etc.
  - Industries/business sector

  It is not expected that all partners will be able to fulfil all the stakeholder requirement. However, it is required that at least 2 of those contacts are established, and attempt – even if not successful - made to develop the other links are described.

6. APPENDIX

QUESTIONNAIRE FOR STAKEHOLDER INVOLVEMENT AND INNOVATIVE PEDAGOGY IDENTIFICATION

Introduction

Key specific features of transform with respect to the Adopt and Adapt phases are the following:

- Involvement of relevant stakeholders in the process;
- Development of an open ended pedagogy, mainly targeting “expert” RRI teachers-
- Focus on RRI issue: role of media, ethics, the nature of science in society, etc

In the following short questionnaire (see sheets 1 and 2 in this document), we kindly ask you to provide ideas, clues and exemples based on your local experience, that can be useful to designing the global TRANSFORM dissemination strategy.
Questions concern 1) stakeholder mobilisation and 2) innovative pedagogies.

1. Stakeholder mobilisation:
Depending on their identity, stakeholders act as content providers, dissemination agents, target groups, or a combination of those.
For each stakeholder, we ask all partners to provide a list of persons/institutions that will be potentially engaged, and a few line describing the intended strategy. Don’t hesitate to put “I do not know” statements (although possibly at a minimum!) : the result of these survey and D6.11 should help filling those in !

2. Innovative pedagogy:
Please share your experience on relevant RRi oriented teaching practices you were involved in or are aware of, and help us identified what were the elements that made it successful in appealing to targeted teachers and possibly other stakeholders.

Satkeholder mobilisation

Stakeholder	Main caracteristics	Q1.1 Please indentify at least 4 stakeholders that you plan to involve in the TRANSFORM phase - Provide reasons supporting your choice.	Q1.2 Please identify the strategy that you intend to apply to engage this particular stakeholder.	Q1.3 Please provide a list of scientist/scientific institution that you plan to involve
Scientists / Research organisations	*Scientists :* *They are expected to link directly with teachers to develop common programs, or to be contacted by teachers to ensure that “science in its making” is included in the teaching strategy;* *They should be selected according to their expertise on specific,*			

	ENGAGE relevant topics (that is, topics treated in the ENGAGE materials); and according to their awareness of RRI issues. *<u>Research institution :</u>* *They are expected to support scientists in their participation in Engage;* *They can be multiplier of selected ENGAGE materials for outreach purposes;* *They are target groups for Engage's goal of producing institutional change.*			
Science museums / Science centers	*They are expected to contribute to ENGAGE material production through their informal science education expertise;* *They are expected to contribute to ENGAGE material dissemination by including ENGAGE advertisement in their communication or in local activities;* *They are expected to be engaged in the organisation of an online event (webinar) and or a local event.*			
The media, media experts and journalists	*They are expected to participate in some teaching activities, as active participants or as consulted expert, in order to ensure the understanding by teachers and students of the mechanisms governing science in the media;* *They will become aware of innovation in science education;* *They might eventually contribute to the dissemination of*			

	ENGAGE results.			
Educational institutions	*They are a target group for Engage's goal of producing institutional change;* *They are dissemination agents for Engage material (all three stages).*			
Industries / the business sector	*They are expected to help focus on innovation issues, and industry based R&D (both on their positive and critical aspects);* *They are expected to contribute (directly or consulted) to the Engage transform materials and projects;* *They will be sensitized to RRI issues as an indirect effect of participating in Engage.*			

Innovative pedagogies

Q 2.1 Please identify examples of innovative and/or open-ended and/or project-based and/or RRI focused pedagogy in your country, that you consider relevant for the transform phase (either your own projects, or projects you are aware of in your country).

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Q 2.2 Please identify dissemination strategy observed in these projects that could be useful for Engage, or lesson learned from these projects in terms of dissemination.

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