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Plan for the continuation of Community of Practice

D5.6 Plan for the continuation of Community of Practice

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1 Introduction

This document presents an overview of the Community of Practice (CoP) established as a key aspect of the SAILS project. It discusses how the CoP has grown in each of the beneficiary countries over the lifetime of the project. A review of existing CoPs uses by science teachers is presented and informs the plan for continuation of the national CoP in each country. This report describes the plan for how the SAILS CoP activities will be continued at both national and international level after the SAILS project is completed.

In a previous report entitled *Activities of the Community of Practice (COP) II* (D5.5), the challenges faced by the project team with regard to supporting the CoP were outlined. This report (D5.5) also considered if the CoP communication portal in its current form (as part of the SAILS project website) was fit for purpose as a sustainable tool to facilitate the SAILS CoPs. From the conclusion of this report (D5.5) it was clear that a more sustainable mode for the CoP in each participant country needed to be established.

This document outlines our plan to achieving a sustainable CoP focused on supporting teachers in developing and extending their own practice of inquiry learning and its assessment. It follows on from a concerted effort by all partner to grow and nurture CoPs centred around the SAILS project. There are two aspects to this approach. Firstly, by the end of the project, the SAILS website will be redesigned and converted to a static site (meaning there will be no maintenance overhead). Social media buttons will be used to allow teachers to easily share the many outputs of the SAILS project, i.e. Inquiry and Assessment units, classroom videos, key reports, with their existing communities and networks. Secondly, at national level, each beneficiary country has considered how they will integrate the activities and membership of the SAILS CoP into their national context and resources.

1.1 OBJECTIVES OF THE SAILS CoP

The aim of the SAILS COP is to bring practitioners of inquiry learning and assessment in science together to facilitate a learning community. This community should be an active community where participants actively contribute through discussion forums and sharing of resources.

The key objectives for the SAILS CoP are as follows:

- The Community of Practice will engage teachers interested in IBSE and promote itself as a place to engage, learn and reflect about assessment and inquiry and a facility to collaborate both nationally and internationally.
- The Community of Practice will become a flexible and informative resource for science educators in IBSE and assessment, growing and sustaining itself beyond the lifetime of the project.

This document will focus on this second objective and detail the approach being taken by the project beneficiaries to sustain the SAILS CoP at both national and international level and outline what steps have already been taken in this regard.

1.2 OVERVIEW OF SAILS CoP

One key point in relation to what constitutes a Community of Practice (CoP) is that they are identified as a community and not only by the means by which the CoP is brought together. The SAILS project has created and maintained a dedicated website to share information and resources and between all members of the CoP. The SAILS website has facilitated the SAILS community of practitioners to share and discuss their practice and to collaboratively develop and extend the use of IBSE and its assessment in classroom practice.

The literature generally converges on the definition of a CoP as proposed by Wenger (1998²) on what constitutes a successful CoP. This definition contains three key aspects:

- A domain – a body of knowledge that creates a common identity among participants.
- A community – a group of people who are interested and care about the domain. These people create a social fabric of the CoP.
- A shared practice – is a method of working developed by the community to be effective in the domain.

This idea of a CoP was further described as (Wenger, McDermott, & Synder, 2002³):

Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.

In the context of the SAILS CoP the domain relates to the body of knowledge around assessment in Inquiry-Based Science Education (IBSE) and assessment of inquiry learning. There are then three distinct communities that can be identified as constituents of the SAILS CoP:

- The SAILS project beneficiaries from each country.
- Country communities - educators facilitating SAILS teachers workshops, supporting trailing the classroom and developing case-studies of these experiences.
- Practitioner communities – teachers supporting each other in using IBSE and assessment and facilitated by the SAILS project team member.

The shared practice is the objective of the SAILS project; to develop and extend the use of IBSE and assessment of inquiry learning.

Within the SAILS website a CoP portal is facilitated at two levels:

1. National CoPs in each native language for each of the countries participating in the SAILS project:
Belgium, Denmark, Germany, Greece, Hungary, Ireland, Poland, Portugal, Slovakia, Sweden, Turkey, United Kingdom.
2. An International CoP (in English) providing resources, support and a common discussion forum.

1.3 CoP RESOURCES

All members of the CoP can avail of the following resources:

² Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge, UK: Cambridge University Press.

³ Wenger, E., McDermott, R., & Synder, W. (2002). *Cultivating communities of practice*. Harvard Business. Boston, MA: Harvard Business School Press.

- Inquiry and Assessment units – as well as draft versions of other inquiry and assessment resources.
- Case-studies – Narratives of teacher’s trialing of particular inquiry materials or assessment strategies.
- Publications - Access to publications and other outputs from the SAILS project;
- Forums - The facility to discuss and comment on IBSE and assessment issues and share ideas with other likeminded contributors, both nationally and internationally;
- Events - Access to information on upcoming events as well as opportunities to promote other events.

From the CoP members’ perspective, the overall objective of the CoP is to maintain and grow teacher’s interest in and use of IBSE and IBSE-related assessment strategies. The CoP presents an opportunity for teachers and educators that have participated in the SAILS project, to deepen and extend their knowledge through active participation in their national (and international) CoP.

1.4 REPORT OVERVIEW

This report will outline the usage and activity level of the CoPs developed and facilitated as part of the SAILS project. Firstly the engagement in the CoP platform on the SAILS project portal will be reviewed. This will focus on three key metrics:

- Membership – the number of members in a specific CoP.
- Discussion – the amount of discussions taking place in a community.
- Resources – the number of resources made available to the community by the community.

Secondly, the CoPs for science teachers that are active in each of the beneficiary countries will be reported upon. This will consider existing communities that are maintained either virtually or physically. Virtual CoPs outside of the context of the SAILS project may be maintained through mediums such as email or social media. Physical projects may be maintained through forums such as meet-ups, conferences and workshops.

This report will present the plan being adopted by the SAILS project team to sustain the SAILS CoP membership and activities beyond the lifetime of the project. The first part of this plan is to redesign and launch a static website to share the outputs of the project outputs with its existing CoP members and other interested individuals/networks. An outline of how social media will be leveraged to support communication with and between CoP members will be given. Finally, an overview of national SAILS events that have taken place with CoP members and national stakeholders will be reported.

2 SAILS CoP

The SAILS project has developed and maintained a growing CoP as a key aspect of the project's commitment to sharing practice between teachers and beneficiaries, since Month 10 of the project lifetime. The trends of membership enrolments for month 10 to month 46 is presented for each beneficiary country in the following section. A key purpose of the CoP was to facilitate discussions and sharing of resources and the trends for these activities for each beneficiary country are also discussed.

2.1 COP MEMBERSHIP

The graph in Figure 1 shows the growth in membership of the COP in each participating country over the lifetime of the project. As illustrated in this figure, there has been a steady increase in membership in each country throughout the project. Of particular notice are the steep increases in membership numbers which occur at several points and coincide with national teacher education programme (TEP) activities and the SAILS mid-project conference for teachers held in Dublin (Month 30).

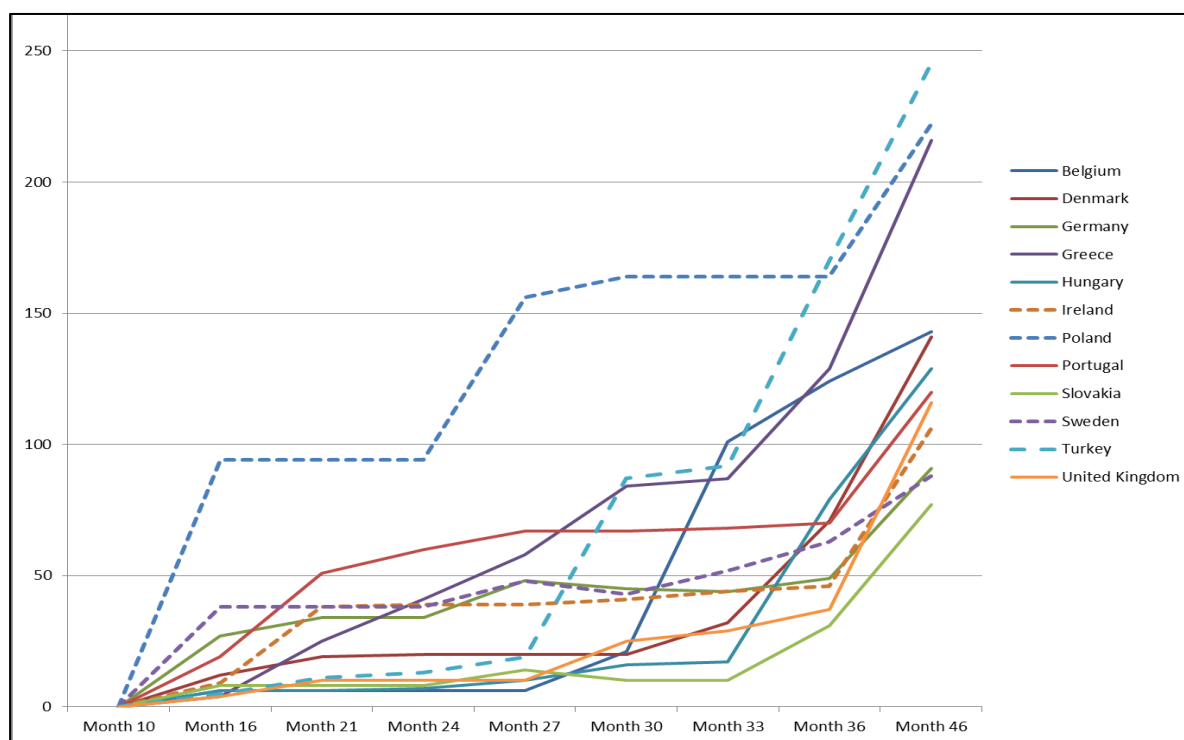


FIGURE 1 MEMBERSHIP OF SAILS COPS

The majority of teachers joined the COP as a result of a SAILS TEP workshop or through an email request from the CoP facilitator. Teachers that participated in SAILS TEP workshops were invited to register as members of their national CoP and even in some cases registration on the CoP was included as part of the TEP activities.

Table 1 presents an overview of the teacher membership numbers for each of the twelve participating counties, at the end of the project (data recorded at end of Month 46). The total membership is 1,410, which is just over 50% of the total number of teachers that have attended SAILS TEPs over the project lifetime.

Country	Members
Belgium	143
Denmark	141
Germany	91
Greece	216
Hungary	129
Ireland	106
Poland	222
Portugal	120
Slovakia	77
Sweden	88
Turkey	245
United Kingdom	116
TOTAL	1410

TABLE 1 MEMBERSHIP OF SAILS COPS

2.2 CoP DISCUSSIONS

All CoP members can create a discussion on topics of interest to the community. Members have the facility to add a new discussion and notify some or all CoP members that the discussion is being added. Opening a discussion topic shows the contributions of the members who are part of the discussion. It also enables the viewer to post a new comment to the discussion.

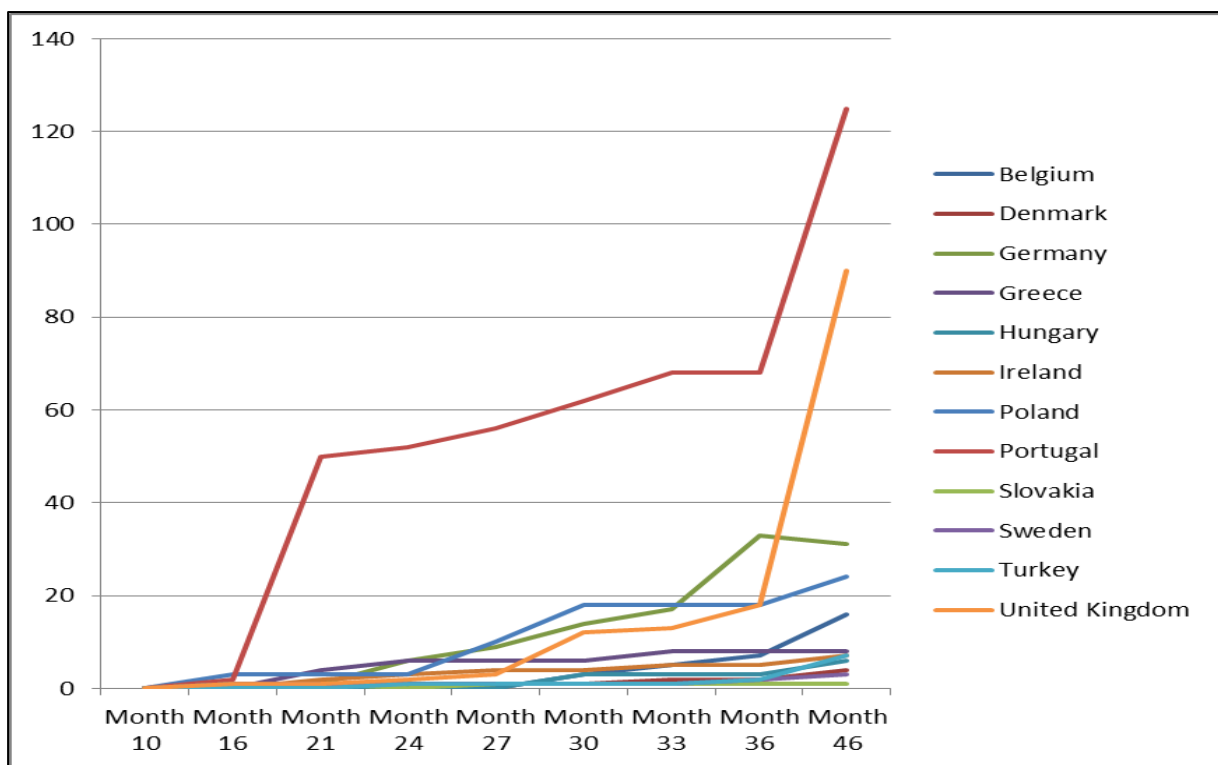


FIGURE 2 NUMBERS OF DISCUSSION TOPICS ON SAILS COPS

The number of discussion topics that have occurred is considered a good indicator of the level of participant activity within the CoP. In most countries approximately twenty discussions were recorded over the lifetime of the project. Towards the end of the project it must be acknowledged there were few conversations happening on the platform. However, two of the countries (UK and Portugal) a showed significant increase in discussion activities towards the end of the project.

2.3 RESOURCES

The resources section contains a range of inquiry and assessment materials (e.g. documents, images, videos, web links, etc.) that members have uploaded to the CoP. Members have the facility to add a new resource and notify some or all CoP members that the resource is being added. Members can also search for resources under a keyword search or a guided search.

In addition, there is also a Folders section for materials. This has been included for users who prefer a folder structure for documentation, rather than the searchable Resources function. All members of the CoP have access to the resource and folders sections. The quantity (and quality) of resources is an important factor in making each CoP relevant and interesting to its current and future membership and the number of resources added to each CoP is presented in Figure 3.

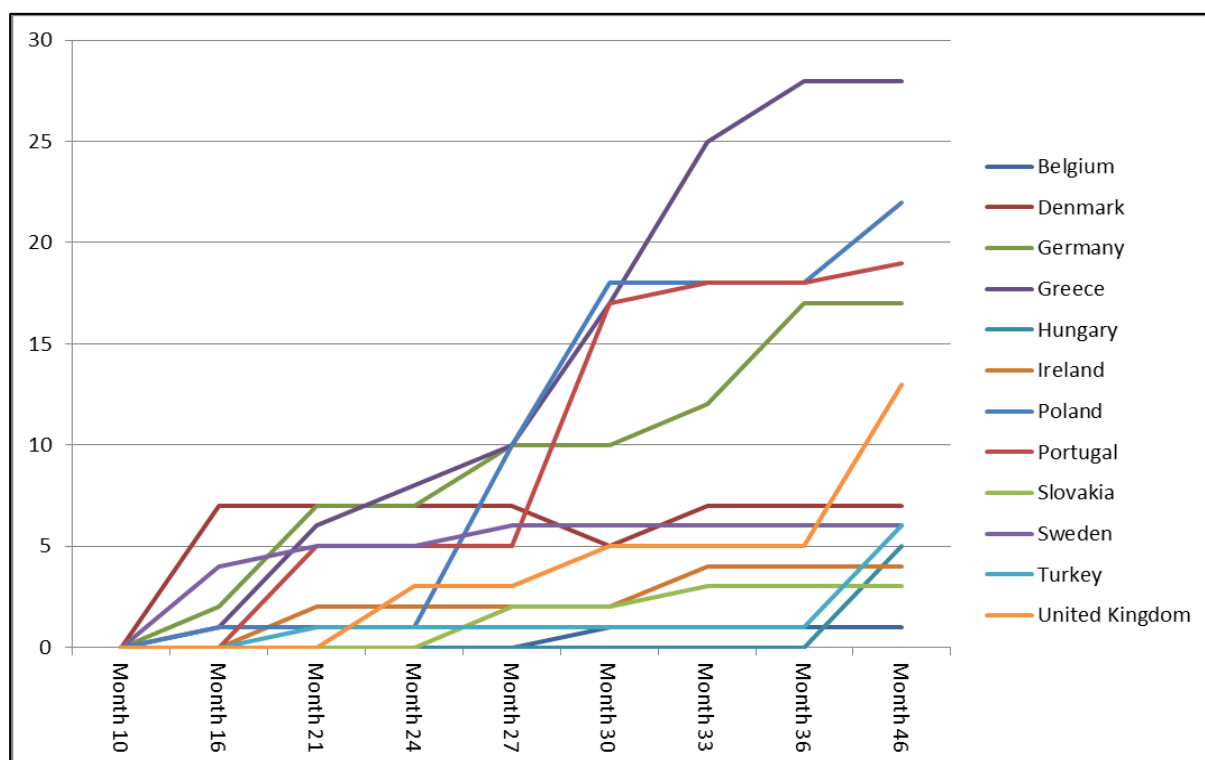


FIGURE 3 RESOURCES IN SAILS COPS

As can be seen in Figure 3, the numbers of resources at the end of month 24 was low. During Months 25-36 there was a notable increase in the number of resources and this trend continued into the final months of the project. Most of these resources have been added by the SAILS team, and very few by practitioners (notably the Portuguese CoP has a number of resources added by teachers). This indicates that teachers did not feel confident to add resources to the CoP but made use of alternative means to share resources, e.g. sharing of printed materials at TEP workshops. The folder feature on the site was used well by the membership. Many participants found this feature more intuitive than the resource functionality.

3 National Teacher CoPs

In each of the beneficiary countries CoPs are in operation, with some facilitated by the local SAILS partner and some maintained outside of the SAILS project. Many CoPs are very simple in their communication channels typically using email to communicate with each other and share resources.

The SAILS CoP has contributed strongly to teaching communities in the participating countries through providing a forum for teachers to come together to discuss IBSE and assessment as a common domain of interest with the objective of developing a shared practice. In particular, the SAILS teacher education programmes (TEPs) implemented over the lifetime of the project has built communities around IBSE through experiences shared at workshops. Over 2,500 teachers, both pre-service and in-service have participated in TEP workshops over the past four years. The participation in these workshops has initiated the development of National CoPs as teachers got to meet each other and discuss and develop their IBSE and assessment practices. These communities are sustained beyond the lifetime of the TEPs with teachers keeping in contact, for example through email or other workshops/events.

CoPs are not unique to the SAILS project. Indeed many teachers are engaged in CoPs outside of the SAILS project most of which are informal in nature. These include:

- Trade Union groupings and working groups.
- Alumni groups from teacher training colleges.
- Communities built around events such as conferences etc.
- Online communities that use social media platforms such as Facebook, LinkedIn, Twitter or email distribution lists.

THE CHART IN

Figure outlines the popularity of common online platforms for the purposes of CoP communication and sharing, based on information provided by SAILS partners.

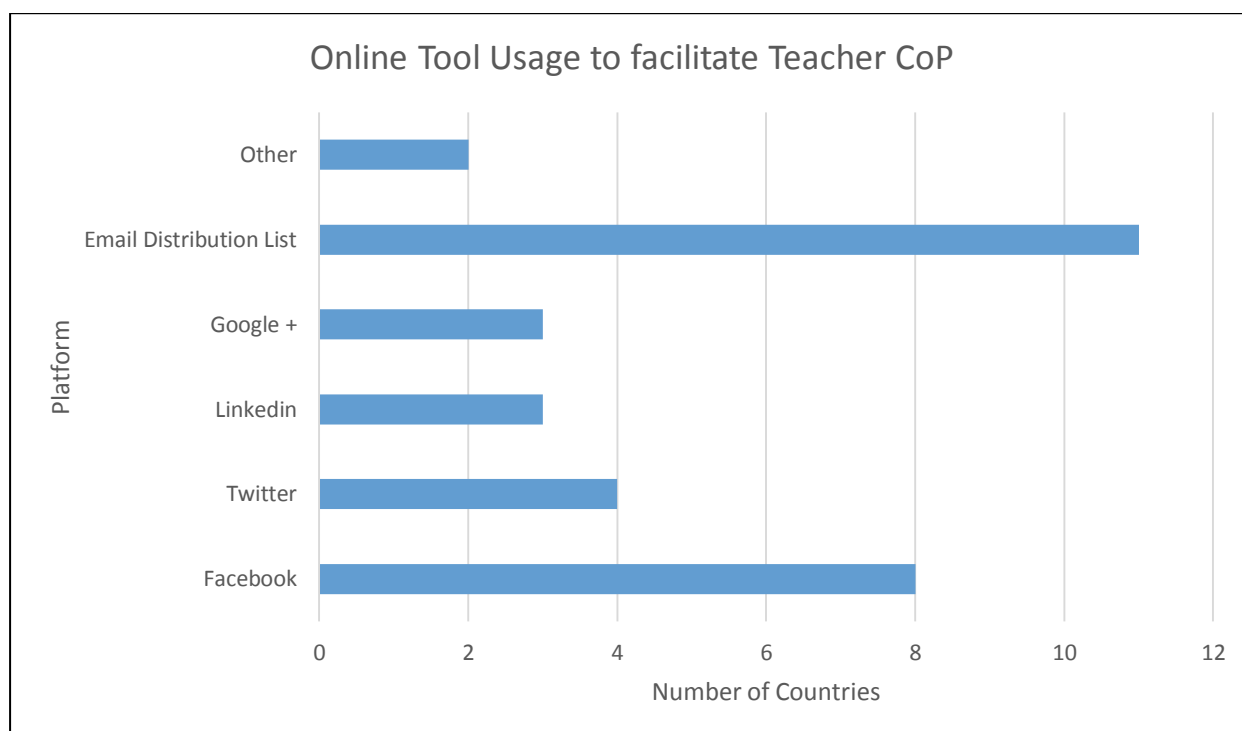


FIGURE 4 ONLINE TOOL USAGE TO FACILITATE TEACHER COP

Teacher CoPs that are operating outside of projects are generally centred around one jurisdiction, have consistent moderation and promotion and appeal to a wide spectrum of concerns facing teachers on a daily basis. These CoPs may also offer teachers a way to promote themselves among their peers in a national settings which can be a significant incentive for teachers to engage with the CoP.

Facilitating a CoP is a challenging endeavour, especially one with a limited lifetime such as one associated with a four-year project. The key challenges for moderators include (Tarmizi, de Vreede, & Zigurs, 2006⁴):

- Encouraging new members to participate in community activities
- Promoting ownership and encouraging group responsibility
- Creating comfort with and promoting understanding of the tools and tool outputs

These challenges have been encountered by the SAILS team and the CoP facilitators. The SAILS project aimed to develop a CoP of practitioners across Europe to develop and extend the use of IBSE and assessment of inquiry learning. Therefore a CoP was developed for each country and an international CoP was also facilitated. The SAILS CoPs enabled teachers to communicate, in multiple languages, and share ideas and resources with likeminded teachers from their own country and other European countries. Participation in TEPs was leveraged to engage new membership. SAILS partners and pilot teachers were encouraged to upload relevant materials and promote the purpose and benefit of these. However, the key aspect that will sustain the SAILS CoP is the contribution from teachers through sharing their inquiry materials and assessment strategies and experiences from the classroom. The data presented for SAILS CoP activities showed a steady increased in membership, discussions and resources uploaded and this positive trend indicates an increase in teachers comfort of contributing to such a CoP.

⁴ Tarmizi, H., de Vreede, G., & Zigurs, I. (2006). Identifying challenges for facilitation in Communities of Practice. In *Proceedings of the 39th Hawaii International Conference on System Sciences* (pp. 1–10).

4 SUSTAINING SAILS CoP

The plan of the SAILS team for achieving a sustainable CoP is focused on providing continued support for teachers to develop and extend their own practice of inquiry learning and its assessment. It follows on from a concerted effort by all partner to grow and nurture CoPs during the lifetime of the SAILS project. To address this goal, the SAILS website has been redesigned and converted to a static site (meaning there will be no maintenance overhead). This static site referred to as the 'legacy' site is accessible from the SAILS project website and will replace the project website early in 2016. The use of Social media buttons will be leveraged to allow teachers to easily share the many outputs of the SAILS project, i.e. Inquiry and Assessment units, classroom videos, key reports, with their existing communities and networks. The SAILS units will also be made available through the Scientix platform in English and anticipated to be translated into several languages at the request of teachers from the participating countries. In addition each SAILS beneficiary has considered how they will sustain the activities and membership of the SAILS CoP in their own national context and activities.

4.1 SAILS STATIC WEBSITE

The goal for the redesign of the existing SAILS project website and CoP portal is that all SAILS outputs can be brought into existing teacher CoPs with ease. To do this the SAILS team will migrate the existing SAILS "project" site into a SAILS "legacy" site. Until now the SAILS website was the vehicle for supporting the work of the project to create outcomes. The legacy site will concentrate on distributing these outcomes and make them accessible and shareable with existing teacher CoPs. This is a logical transformation of the SAILS site as the project closes out. Figure 5 is a screenshot of the new SAILS static site.

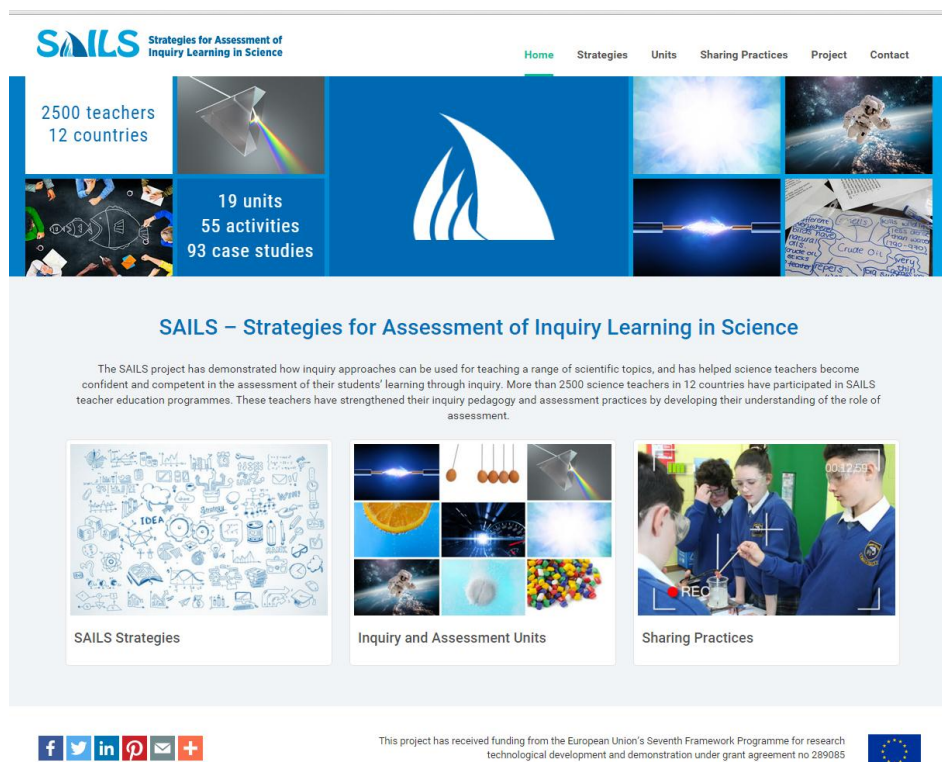


FIGURE 5: SAILS STATIC WEBSITE

The website is presented (Figure 5) with three foreground links: SAILS Strategies, Inquiry and Assessment Units and Sharing Practices. The SAILS Strategies section outlines the content domain of this static website. The range of inquiry skills and competencies addressed within the SAILS project for learning in science and discusses assessment and its purpose within the context of an inquiry classroom are introduced.

The SAILS Inquiry and Assessment Units showcase the benefits of adopting inquiry approaches in classroom practice, exemplify how assessment practices are embedded in inquiry lessons and illustrate the variety of assessment opportunities and /or assessment processes available to science teachers.

The sharing practices section (Figure 6) is a unique feature of the SAILS legacy and provides illustrative examples of classroom based assessment practices applied across the sciences through the format of videos of classroom practice, interviews with teachers on different units or assessment strategies and interviews with SAILS partners on the impact of the SAILS project in each country.

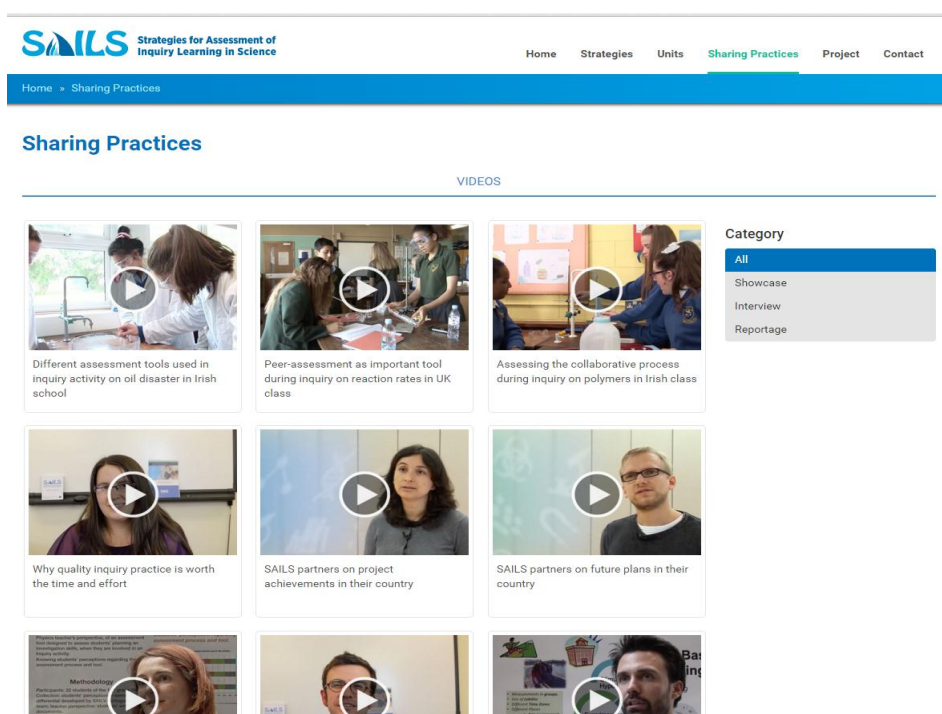


FIGURE 6: SAILS STATIC WEBSITE - SHARING PRACTICES

4.2 LEVERAGING SOCIAL MEDIA TO COMMUNICATE WITH CoP

Following on from our research on social media use in each partner country we believe that using existing social media channels is a clear strategy for sustaining the CoP. This strategy will involve tapping into existing CoPs and utilising the communication methods already used by that CoP. This has the following advantages:

- As the CoP already exists it is assumed to be self-sustaining.
- There is no ongoing monetary cost as the SAILS team will be using existing free-to-use technology.

In particular, each of the 19 units developed by the SAILS project, along with over 100 case studies of implementation of these units in classrooms across Europe are freely provided for all existing SAILS CoP members and new teachers to the project. The units are searchable in terms of concepts

addressed, level, inquiry skills and competence included and what methods of assessment have been utilised in this unit. For example, Figure 7 is a screenshot of the SAILS unit “Acids, bases, salts”. The page gives a description of the unit and allows the user to download the unit booklet for detailed information on the inquiry activities, assessment strategies and the case studies of classroom practice pertaining to this unit.

The screenshot shows the SAILS website interface for the 'Acids, bases, salts' unit. The page includes a navigation menu with 'Home', 'Strategies', 'Units', 'Sharing Practices', 'Project', and 'Contact'. The breadcrumb trail indicates the user is in 'Home > Inquiry and Assessment Units > Acids, bases, salts'. The main heading is 'Acids, bases, salts' with the subtitle 'All acids are harmful – or are they?'. Below this, there are three tabs: 'OVERVIEW', 'ACTIVITIES', and 'CASE STUDIES'. The 'OVERVIEW' tab is selected, displaying a detailed description of the unit's objectives and the inquiry skills it aims to develop. A 'UNIT BOOKLET' download button is prominently displayed. A list of key content, level, inquiry skills, and assessment methods is provided. At the bottom, a red box highlights social media sharing icons for Facebook, Twitter, LinkedIn, Pinterest, Email, and a plus sign for more options. A small text block mentions funding from the European Union's Seventh Framework Programme.

FIGURE 7: SCREENSHOT OF SAILS UNIT IN STATIC WEBSITE

At the bottom of Figure 7 are sharing buttons (marked with a red box). These buttons allow the user to quickly and easily share this unit using a range of popular social media outlets and the purposes of each are described in Table 2.

Social Media Platform	How it is used for purposes of CoP?
Facebook	Teachers can share the unit with Facebook groups that they are involved with. Several examples of teachers communicating with each other using the Facebook platform are available, e.g. <ul style="list-style-type: none"> - https://www.facebook.com/Irish-Maths-Teachers-Association-355409477856681/ - https://www.facebook.com/InspiringScienceEducation/ - https://www.facebook.com/Scientix/?fref=ts - https://www.facebook.com/velewe/
Twitter	Teachers use Twitter to share resources and experiences. Twitter hashtags are used to denote a topic or keyword. This allows for conversations to take place on Twitter using the hashtag.
LinkedIn	LinkedIn groups allow for LinkedIn members come together in a closed community to discuss topics and share files.
Google+	Google+ is an online networking site. Google+ allows members to share content with their communities known as circles.
Email	Email is the most common form of communication within the existing teacher CoPs. Many teachers are already on a mailing list. Mailing lists can be used to share content and for discussion or announcements. This is a simple and very informal mechanism for keeping a CoP

	together as any member of the community can opt out at any time.
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TABLE 2 : SOCIAL MEDIA PLATFORMS AND PURPOSES

5 SUSTAINING NATIONAL CoPs

In this section we review each individual participant country in terms of their plans to sustain the SAILS CoP developed during the project. Most SAILS partners have organised or plan to organise final SAILS events in their country in the coming months. These final SAILS national events serve two significant purposes: (1) to disseminate the project outputs on a national level to key stakeholders and policy makers and (2) as a platform for enhancing their national communities of practice and celebrating the contributions of the science teachers to the SAILS units and SAILS CoP. Several SAILS partners have already held their final national events, other countries still plan to do a national final event at the beginning of 2016 as this is a better timing. Further details on these national events are reported as part of project dissemination activities (D6.6).

Following on the success of national SAILS teacher's writing groups for developing units and sharing practice, a trilateral meeting of SAILS teachers was held in Lisbon in October 2015. Three teachers from Ireland, three from Portugal and four from the UK came together to develop new draft SAILS units. These ten teachers have maintained communication and development of these units using a WhatsApp group and email communication. The three Portuguese teachers subsequently visited Dublin to further collaboration and contributed to the assessment practice in a lower secondary classroom doing one of the SAILS units.

5.1 BELGIUM

SAILS science teachers in Belgium are well served in terms of opportunities for collaboration, and already avail of face-to-face events such as:

- VeLeWe (www.velewe.be) – Association of Flemish Science Teachers (annual event, other events, newsletter) to communicate and discuss science teaching and learning.
- ICT in de klas (EduCentrum) has two annual events where teachers convene around specific education-related themes.
- KlasCement is the Flemish language education content portal with over 50,000 subscribers where teachers exchange learning and teaching materials as well as practices and experiences.
- Scientix is a European repository of education resources, connected with a non formal CoP. This is not a Flemish initiative but it operates on a European level, under the umbrella of European Schoolnet.

There are also many offline events and meetings organised by the different education networks (VKSO, Go!, VVSG) as well as by the teacher training colleges, the faculties of science and education, their associations and European networks (Scientix) where science teachers come together face-to-face.

Coaching meetings where science teachers meet with their pedagogical advisers also provide mechanisms for teachers and experts to come together. The SAILS units will be very useful to share with the teachers during such meetings, plans have been made to translate some of the units into Dutch.

The Belgian team plans to continue to feed into these events and working with the networks with which they have existing ties: these include relations on a European level with Scientix and European Schoolnet, Eminent, Inspiring Science Education, ESRO.

The Belgian partners are planning a national event for 17 February 2016 with CoP members, teachers and policy makers to share the outcomes of the SAILS project.

5.2 DENMARK

Teachers in Denmark are using national CoPs outside of SAILS and also using Facebook as a medium for CoP activities. The Danish team will continue to connect to the SAILS teachers through Facebook and direct email.

The Danish team will also meet with science teachers, including SAILS teachers through face to face events including the Big Bang Science conference.

A final SAILS conference for participating teachers from both Denmark and Sweden was held in Odense on 30 November 2015. Over 40 participants attended the conference. Participants were a mix of teachers from the SAILS teacher education programmes (TEPs), teachers from pilot groups and researchers from the SAILS project. The event was a collaborative act by SAILS partners from the University of Southern Denmark and Swedish partners from the Malmö University and Kristianstad University College.



The 19 SAILS inquiry & assessment units were presented – of which one third have already been translated into Danish and distributed to the participants on USB sticks. After a day of presentations and discussions the participants went home with lots of new insights and useful SAILS inquiry & assessment resources which they can try-out in their future practice.

5.3 GERMANY

The German SAILS team will maintain the CoP of teachers built around the SAILS project through:

- Direct email and email distribution lists
- Direct contact during hiring experimental materials
- Contact for the purposes of publishing in special editions of teacher journals.

The German team will also meet with science teachers, including SAILS teachers through face-to-face events including:

- MNU conference – Association of mathematics and science teachers conference.
- Numerous teacher training workshops organised by ZfL (ZfL is the centre for teacher training).

The LUH team plan to co-operate with the SAILS teachers in the future with regard to new projects and teaching.

5.4 GREECE

All participants in the SAILS Greek workshops are required to join the SAILS Greek CoP. Also, all the training material, as well as the new resources related to quality IBSE scenarios will be uploaded to this community. The idea is to continuously enrich the CoP with new members and resources. This community will be maintained by the Greek partner following the conclusion of the project.

There are several national conferences around the topic of Using New Technologies in Education that will allow Greek science teachers to come together. One conference of particular relevance to SAILS teachers was the final SAILS national event organised in November 2015..



Over 300 participants attended this event organised by the University of Piraeus Research Centre, the Greek SAILS partner, on 28 and 29 November 2015 in Athens. The conference theme was "Learning Science through experiment, inquiry, technology and modern assessment techniques". The event was held under the auspices of the

Greek Ministry of Education at the very nice venue of Eugenides Foundation in Athens. Among the participants there were many interested in-service teachers as well as educational consultants, researchers, policy-makers and representatives from industry. In particular, the event hosted various presentations on the SAILS approach and the created inquiry & assessment units. All participants had the opportunity to share experiences and new approaches including modern assessment techniques in science education.

5.5 HUNGARY

Following the conclusion of the SAILS project the Hungarian team will communicate with teachers in the SAILS CoP through existing mailing lists and in-person meetings at regular national conferences, specifically the Annual National Conference on Education and the Conference in Educational Evaluation.

5.6 IRELAND

The Irish SAILS team will use a range of national STEM education events to engage with science teachers including the Irish Science Teachers Association Annual Conferences, Institute of Physics Frontiers in Physics teachers conferences, Royal Chemical Societies ChemEd teachers conferences and Teaching Council's Annual Feilte conference for teachers. Dublin City University will also continue to host the CASTeL Research Centre biennial STEM education conference (SMEC) which brings together STEM teachers from around the country to share best practice and knowledge.

Following on from the SAILS TEP, the Irish team will facilitate its annual teachers Summer School on IBSE and assessment. This will be the cornerstone of ongoing engagement and communication with teachers interested in IBSE and assessment of inquiry learning in science.

Dublin City University shared the results of the SAILS project with key stakeholders in a national conference on 14 December 2015. About 60 representatives from across STEM education at all levels, primary, secondary, tertiary attended the event, including SAILS pilot teachers and their principals, STEM educators as well as representatives of the National Council for Curriculum and Assessment, State Examinations Commission, Inspectorate and Teacher Education support.



SAILS Project Coordinator Dr Odilla Finlayson, opened the conference and introduced the SAILS approach. In line with the project ethos of sharing practices, the new static SAILS website was



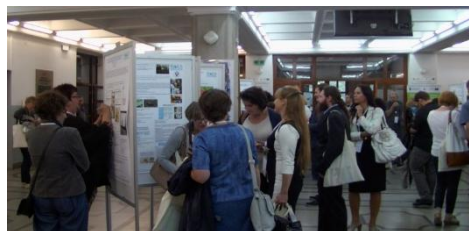
introduced to the participants and the books of SAILS Inquiry and Assessment Units were distributed to all. A particular highlight of this event was the sharing of classroom videos from two of the Irish SAILS pilot teachers, Brigid Corrigan and Robert Clarke, whom later participated in panel discussion. Dr. Eilish McLoughlin, a member of the SAILS coordinating team from Dublin City University, closed this event and highlighted the national relevance of the SAILS project to STEM education and ongoing collaborations with teachers and all national policy makers.

5.7 POLAND

The Polish team will keep in contact with SAILS teachers through numerous events including Summer and Winter schools and national conferences. The Polish team will look to leverage social media to link in with science teachers.

In June 2015 a Summary SAILS Conference was organised by the Jagiellonian University in Kraków. The conference was attended by local stakeholders, 60 teachers participating in the project and 80 other teachers from various regions of Poland. During the conference outcomes of the SAILS project were presented with a special focus on prepared inquiry & assessment units and case studies.

Later in the event teachers that had participated in the SAILS TEPs had the opportunity to present their ideas, adaptations and incorporation of didactic materials and assessment strategies as well as studies on the influence of IBSE on their students. The poster and oral presentations were followed by workshop focused on investigations in virtual laboratories/environments (e.g.: <http://chemcollective.org/vlab/vlab.php>; www.algodoo.com).



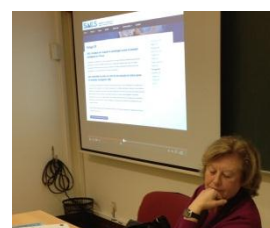
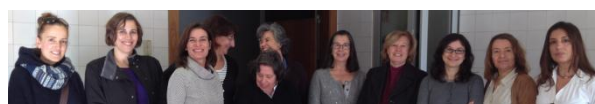
SAILS teachers played a tutor role and shared their knowledge and experience with other teachers. The conference created an opportunity not only to spread information about the project and its outcomes, but also enabled teachers to review and discuss their teaching and assessment strategies.

5.8 PORTUGAL

The Portuguese SAILS team will maintain communication with SAILS teachers through email and using functionality provided by the IEUL institutional website.

Science teachers in Portugal also come together for National meetings such as ENEC (National Meeting in Science Education) and local events organised by universities and text book editors.

The Portuguese SAILS team held a final meeting with the teachers from TEPs on December the 12th, 2015. A discussion about SAILS impact on teachers was carried out. The webinar performed by Cecília Galvão about SAILS (available at the Portuguese Ministry of Education: <http://webinar.dge.mec.pt/2015/12/03/formar->



professores-em-inquiry-e-avaliacao-projeto-sails/) was disclosed as well as the new SAILS site and the materials available on it.

5.9 SLOVAKIA

The Slovakian SAILS team will primarily maintain communication with SAILS teachers through face-to-face sessions. Details of these events are outlined below.

Event	When?	Where?
National conference on physics education DIDFYZ 2016	October 2016	Račkova dolina
Creative physics teacher – regular physics teachers seminar	April 2016	Smolenice
Educo 2016 Czech and Slovak conference on biology teacher preparation	January 2016	Tatranská Štrba
International conference Chemistry congress	September 2016	Prague
National conference of chemistry education – Association of Slovak chemistry teachers	Január 2016	Banská Bystrica

UPJS team will organise in-service teacher training courses, meetings and supportive materials for current CoP members and other science teachers within national project "IT academy". Project target group is represented by 1250 teachers. The main goal of the SAILS follow up project is to attract young people for science and IT studies at universities.

5.10 SWEDEN

Sweden will continue to connect with SAILS teachers through a national science conference for teachers, called 'NO-biennalen'. This conference is held every year; regionally every second year and for whole country every second year.

The Swedish team hopes to maintain the SAILS CoP by moving the SAILS teachers into new projects following the conclusion of the project.

5.11 TURKEY

Email is being used as an alternative CoP communication mechanism to the SAILS CoP portal site. There are also a number of CoP initiatives within the Ministry of Education in Turkey:

- <http://www.vitaminogretmen.com/>
- <http://www.ogretmenlersitesi.com/>

The Turkish SAILS team have created a Facebook group that will be used to sustain and nurture the CoP that has been built through the SAILS project.

- <https://www.facebook.com/HacettepeSTEMMakersLab?fref=ts>

With regards to F2F events the Turkish team will present SAILS material at "STEM and Makers Fest 2016".

In September 2015, a SAILS Teacher Conference for STEM teachers was organised in conjunction with “STEM & Makers Fest/Expo” in Ankara. Around 2000 people took part ranging in age from 3 years old upwards who engaged with IBSE activities. They included over 700 teachers who participated in 26 workshops. This event encouraged many stakeholders and researchers to re-orient their practical communication efforts to support dialogue about STEM with the public. <http://www.stemandmakers.com>



5.12 UNITED KINGDOM

The UK SAILS team will be sustaining the profile of SAILS UK and its community of practitioners, following the closure of the current CoP in a number of ways:

- Science and education conferences will be used to showcase the UK SAILS project work. Conferences include e.g. the Association for Science Education (ASE) annual conference in January <http://www.ase.org.uk/conferences/annual-conference/>. The UK team have a number of workshops booked within the programme which will help bring together the current SAILS teachers and bring on board new teachers and teacher trainers expanding the community.
- Following the recent successful SAILS teacher's writing group in Lisbon, where 3 SAILS teachers from Ireland, 3 from Portugal and 4 from the UK came together to write new draft SAILS units, a WhatsApp group was formed. The intention is to sustain this group to facilitate sharing ideas and teacher visits to each other's classrooms using virtual means and to maintain contact and work collaboratively.
- A twitter handle has been created to facilitate the UK SAILS team in communicating with teachers using this medium: @KingsDEPS and @KingsCollegeLon.
- The KCL team have also set up a webpage on the KCL college website www.kcl.ac.uk/SAILS which houses details of the project, a 4 session teacher education programme with resources and various materials to get new teachers interested and supported in introducing inquiry learning in their classrooms.



A final UK SAILS conference took place at Kings College London in October 2015. SAILS partner Dr Chris Harrison spoke about the rationale behind the pan-European project SAILS and the positive impact on both teachers and their classes of students in the UK as a result of having engaged with the SAILS project. SAILS partner Prof Paul Black discussed the types of assessment and the need to focus on "moments of learning not moments of judgment". Science teachers Katie Barber and Stephen Philips each gave rousing presentations about the impact of SAILS on them as individuals, the students they taught and how they are now working with colleagues in their current school. Seven teachers presented their posters and shared their individual learning journey and explained the impact of the SAILS project on their approach to science teaching, assessing inquiry skills and how their students have developed in confidence and competence as a result.

6 Conclusions

The Community of Practice (CoP) portal on the SAILS project website was developed to support the CoP activities and did this quite successfully during the lifetime of the project. Following the initial population of the website with draft inquiry and assessment materials and the teachers attending SAILS teacher education programmes (TEPs) were introduced to the purpose of the CoP, all national CoPs became active (Month 10).

The SAILS project saw an increase in CoP membership numbers, discussion forums and numbers of shared resources during the last two years of the project. In this way the CoPs played the role they needed to play during the lifespan of the project. This is considered a significant achievement of the project as it is particularly difficult to gain traction in a practitioner CoP in a project like SAILS where the subject material is quite specialised, the project is cross-border and has to deal with language and cultural issues and participants were aware of the relatively finite lifetime of the project and therefore the CoP in its presented format.

Face-to-face events played a central role in bringing together the national and international CoPs members. The SAILS mid-project conference for teachers which was held in Dublin in June 2014 (Month 30) enabled SAILS teachers from across Europe to share classroom experiences and uses of particular inquiry and assessment materials. As can be seen by the national plans for sustaining the CoPs, face-to-face events, such as teacher workshops and national conferences, will continue to play a significant role in sustaining the CoPs.

The SAILS project website and CoP portal will be redesigned and will migrate to being a static website. This legacy website of the project will showcase the numerous outputs of the SAILS project. The strategy for sustaining the online SAILS CoP from a technical point of view is to infiltrate existing online CoP mediums. The use of Social media buttons will be leveraged to allow teachers to easily share the many outputs of the SAILS project, i.e. Inquiry and Assessment units, classroom videos, key reports, with their existing communities and networks. The SAILS units will also be made available through the Scientix platform in English and are anticipated to be translated into several languages at the request of teachers from the participating countries. In addition each SAILS beneficiary will sustain the activities and membership of the SAILS CoP through their own national networks and activities.