EUROPEAN
POLICYBRIEF

STRATEGIC SUPPORT AND RESOURCES IN STE(A)M LEARNING ECOLOGIES

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INTRODUCTION AND POLICY CONTEXT

Open schooling and science education context and policies in Europe

Open schooling and science education are key components in developing a well-informed and scientifically literate society in Europe. They both promote the collaboration between schools, communities, CSOs, enterprises and research institutions to create engaging and effective educational experiences, with the aim of empowering the students to have a role in the STEM field. This approach is supported by various European policies and initiatives, including the Open Schools for Open Societies (OSOS)[1] projects, the European Research Area (ERA)[2] policy and the European Education Area (EEA) policy[3].

Building on the work of these European policies/initiatives and on the findings of the first SLEs policy brief, this second SLEs policy brief and its recommendations aim to ensure that science becomes more accessible, relevant, and inclusive, aligning with societal needs and encouraging broader participation in the scientific process. These recommendations will support the institutionalization and sustainability of the SLEs approach, providing a framework for broader adoption and integration into educational systems.

OSOS Projects

The Open Schools for Open Societies (OSOS) network, where the SLEs project is part of, is a key initiative aimed at transforming schools into community hubs that promote scientific literacy and innovation. Funded by the European Commission, OSOS focuses on creating open schooling

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[1] https://www.schoolofthefuture.eu/en/osos
[2] https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/european-research-area_en
[3] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0625

environments where students, teachers, and local communities collaborate on real-world scientific projects.

Key Objectives of OSOS:

- **Promoting inquiry-Based learning:** OSOS encourages inquiry-based learning, where students actively engage in scientific inquiry and problem-solving.
- **Fostering collaboration:** OSOS emphasizes partnerships between schools, businesses, research institutions, and community organizations to enhance learning experiences.
- **Enhancing teacher professional development:** OSOS provides training and resources for teachers to implement open schooling practices effectively.
- **Encouraging student engagement:** By involving students in hands-on projects, OSOS aims to increase student interest and participation in STEM (science, technology, engineering, and mathematics) subjects.

Notable types of OSOS projects:

- **STEM innovation labs:** Schools create innovation labs where students can experiment with new technologies and scientific concepts.
- **Community science projects:** Collaborative projects that address local issues, such as environmental monitoring and sustainable development.
- **Science festivals and fairs:** Schools host events to showcase students' scientific work and engage the broader community in science education.

European Research Area (ERA) and European Education Area (EEA) Policy

The European Research Area (ERA) policy together with the European Education Area (EEA) policy are a strategic framework aimed at creating a unified education, research and innovation landscape across Europe. Together they seek to enhance cooperation, reduce fragmentation, and promote excellence in education, research and innovation by working to make knowledge a foundation for democratic, resilient and inclusive societies.

The **ERA Policy**, in its effort to achieve its fourth objective "Deepening the ERA", makes clear the need to strengthen the participation of women in STEM fields and foster entrepreneurship as well as the potential of involving young generations in promoting participatory actions concerning the transformation of our economy and society. To this end, the role of science education in formal and non-formal learning contexts is key.

In relation to this, the **ERA Action 14** of the **ERA Policy Agenda 2022-2024** is titled **"Bring Science Closer to Citizens"** and aims to increase public engagement with science through citizen science initiatives, improved science communication, and education and training activities. It focuses on making scientific research more accessible and relevant to everyday life, fostering greater trust in science. This action seeks to strengthen the connection between science and society, ensuring that research is inclusive and aligned with societal needs.

Furthermore, the European Commission in the Communication on the **European Education Area EEA** (2020) recognizes the importance of:

- Promoting gender equality to challenge and dissolve gender stereotypes that constrain the choices of boys and girls for their field of study.
- Starting from the education systems to change behaviours and boost skills for the green economy.
- Pursuing an innovative and multi-disciplinary teaching and learning approaches for basic skills.
- Fostering transversal skills.
- Encouraging non-formal learning which help to gain life and professional skills and competencies.
- Bringing science to schools. To this end, it is worth mentioning the "Researchers at schools" initiative allowing young researchers to engage with teachers and students on different science topics such as climate change, sustainable development, digitalisation, health.

SLEs project is trying to build on these policies and objectives to develop a more open, inclusive and participatory learning environments.

STE(A)M Learning Ecologies (SLEs) Project

The 3 years STE(A)M Learning Ecologies (SLEs) project (G.A. 101094648) aims at promoting science education as part of local community development through the creation of open schooling partnerships between formal, non-formal and informal education providers, civil society and enterprises working together on real-life problem-solving situations within local communities. To this purpose, SLEs introduces the powerful concept of "STE(A)M Learning Ecologies", intended as partnerships able to provide multiple science learning opportunities for all citizens in a learning continuum of different learning spaces.

The SLEs approach brings together the dimensions of open schooling, living labs, and STE(A)M education. Open schooling promotes collaboration between schools and their communities, transforming educational institutions into community-connected learning hubs. The Living Labs dimension emphasizes co-creation, where stakeholders such as researchers, educators, students, industry professionals, and civil society collaborate closely resulting in designing and testing solutions in real-world settings. STE(A)M education ensures a multidisciplinary approach that fosters creativity and critical thinking.

A key feature of the SLEs project, setting it apart from other initiatives, is its commitment to create sustainable pathways for educational innovation. This is achieved through the co-designed implementation of living labs in iterative cycles, which contrasts with the more common approach of one-shot open schooling initiatives. By involving stakeholders in an ongoing, iterative process, the SLEs project aims to build long-lasting, adaptable educational ecosystems that can evolve with the needs of the community.

OBJECTIVES AND METHODOLOGY

The **first small-scale pilot implementation of SLEs** took place in Year 2 of the SLEs project, between September 2023 to May 2024, in **13 European countries**. In this context, SLEs partners organised several co-creation workshops involving numerous stakeholders (teachers, educators, researchers and experts, representatives of science museums, industry, civil society, and public authorities) who have joined forces at local level to develop and implement learning ecologies. Various webinars have been organised, support material and different guidelines have been created, students' learning artefacts and feedback have been collected while conclusions have been drawn and initial reflections have been made.

In addition to these efforts, there has been a strong emphasis on **collecting evidence and impressions** on stakeholders' experiences. This data collection aims to provide insights into the impact of SLEs on communities, thereby informing future improvements and recommendations.

The data collected, which also informs the evidence of this policy brief, includes an open-ended questionnaire delivered to external stakeholders in the different pilot countries, including policymakers and practitioners, to assess the current state of policies in the countries, as well as perceptions on good practices and challenges related to open schooling and STE(A)M implementation in schools. A total of 11 questionnaires have been analysed to this purpose. Moreover, a multiple-choice survey assessing the evaluation of the pilot implementation in the countries was delivered to project partners, including questions on the learning objectives and competences achieved by students, learning methods adopted, female inclusion, teacher development, stakeholder collaborations and implementation challenges. Qualitative interviews to pilot stakeholders were also used as primary data collection input. Finally, an online co-creation reflection workshop conducted in June 2024 with all project partners to assess the main outputs of the SLEs implementation has been conducted, addressing aspects such as the main benefits of the

SLEs and strategies for replication and sustainability. All these data were analysed considering both their quantitative or qualitative aspects, and the main results are reported in the sections here below.

The results of this analysis have been shared and validated during the 2ⁿᵈ SLEs policy learning session that took place in September 2024 online involving key representatives from DG EAC of the European Commission, representatives from national Ministries of education of Italy and Malta, and Open Schooling EU-funded projects ensuring the correctness and relevance of the collected information. This Policy learning session sparked a fruitful discussion that spotlighted some relevant aspects that were accordingly integrated in this policy brief.

EVIDENCE AND ANALYSIS

State of the art of Open Schooling and STE(A)M in national countries

The following points present the current state of policies, resources, and practices supporting STE(A)M education and open schooling approaches throughout Europe:

- A growing focus on the **development of curriculum** suited to include innovative approaches for education can be observed. An example are new courses that are recently introduced integrating Artificial Intelligence (AI) with artistic subjects in high schools in Galicia, Spain. This curriculum development reflects an effort to merge technical and creative skills, preparing students for a multidisciplinary future.

- There is also a strong emphasis in the analysed countries on **professional development**, with several different training courses offered to teachers and educators. The training courses have a specific focus on arts, technology, and artificial intelligence. Both initial and ongoing training programs are designed to ensure that teachers are well-equipped to incorporate STE(A)M elements into their teaching practices. An example is the Italian ministerial initiative *"Scuola Futura",* an open access platform funded by Next Generation EU program providing teachers with online courses and learning paths focused on innovative teaching methods.

- Pilot programs in some countries (e.g. Spain and Norway) are distributing innovative tools like 3D printers and robotics kits to schools, supported by national and local authorities. This **allocation of concrete resources** supports hands-on STE(A)M activities and enhances practical learning experiences for students.

- **Regional centres dedicated to educational innovation** and STE(A)M education are being established in the case of Germany. These centres support the development and dissemination of innovative teaching practices and resources.

- Efforts to **integrate artistic elements** into STEM education are growing in almost all analysed countries. This approach aims to combine creativity with technical knowledge, providing a more holistic educational experience. However, the formal integration in school curricula is not yet mature due to rigid subject-oriented structures and the lack of interdisciplinary frameworks.

- **EU-funded projects and non-formal initiatives**, such as educational apps and interactive campaigns, are promoting STE(A)M education outside traditional classrooms. This is particularly evident in countries such as Cyprus, Serbia, Greece. Such projects help raise awareness and engage students through innovative methods. For instance, in Serbia formally the Ministry of Education recognizes and encourages ambient teaching as a form of open schooling.

- Successful **multistakeholder collaborations and partnerships** between schools, industry, and research organizations are being supported through various EU-funded initiatives implemented in national countries analysed. Examples include the EU4Ocean Coalition and the Youth4Ocean Forum, which bridge gaps between different stakeholders to foster collaborative STE(A)M education.

- In Ireland, policies and tools have clear **educational goals** on creating open and diverse educational experiences, boosting teacher motivation, and optimizing resource use. This is achieved through the active involvement of local communities, offering continuous teacher training, and developing extracurricular activities that align with educational objectives.

Pilot Implementation 2023-2024

SLEs pilot projects were implemented in **13 different countries**, namely Cyprus, Germany, Greece, Ireland, Italy, Malta, Norway, Portugal, Romania, Serbia, Slovakia, Spain. Each pilot SLE initiator, intended as the entity (schools, universities, science centres, museums, research centres, industries) that start to think, develop and implement a pilot learning ecology (they can be either a project's partner or external stakeholders connected with project partners), was invited to identify and address local problems through the implementation of their project, resulting in a great variety of topics that reflected each country's unique local context. These ranged from AI and digital tools to civic education and sustainable behaviours, to the study of earthquake phenomena, or environmental conservation.

Depending on the theme of each pilot, SLEs recruited different types of **stakeholders** (including universities, research centres, NGOs, private organisations, industries, museums etc.) that could provide expertise and resources for the development of project activities and the definition of the learning products (i.e. artefacts constructed by learners along their paths in the SLEs). A total of **28** formal education providers, **20** non-formal education providers, **18** governmental organisations, **7** civil society organisations, **23** industry partners were involved and a total of **1.076** learners took part in the SLEs pilot projects.

In all the pilots, stakeholders and teachers engaged in co-created activities and workshops and supported students in their learning path by providing valuable resources and expertise. These activities include preparation and co-planning, where stakeholders met to agree on the learning paths to be implemented, make important decisions on the tools and resources to be used, divide roles and responsibilities during project implementation, and evaluate progress.

Moreover, stakeholders implemented diverse activities with students, including delivering in class seminars on specific topics, supporting student group work through innovative approaches, guiding them in the use of new technologies such as AI, 3D printing or robots, and organizing field trips. Finally, stakeholders were involved in the organization of dissemination activities whose purpose was to encourage students to share their learning artefacts and experiences with wider audiences. In certain cases, these events were whole-school presentations, in others, stakeholders such as museums and universities hosted exhibitions or presentations for the local community to attend. Other SLEs took advantage of national conferences to share the project results. Finally, some opted for sharing the artefacts with parents through online communication and involve them in their evaluation by organizing contests.

The extensive engagement of stakeholders throughout the design, implementation and dissemination of SLE pilots, allowed students to benefit from richer learning experiences, thanks to the availability of a broader spectrum of expertise and learning resources than the ones their school could offer. Moreover, teachers also had the opportunity to broaden their horizons to new ways of teaching and interacting with learners and grew professionally thanks to the experience gathered.

However, the most notable result of schools' extensive cooperation with stakeholders, is that it paved the way to future synergies, cultivating a collaborative culture at the local level, where emerging problems in the community can be addressed collectively.

During this first pilot implementation, students in the 12 countries co-produced a variety of different **learning products**, by using dedicated learning resources made available by stakeholders in the SLE pilot. These artefacts were an extremely significant element to decentralize formative assessment while allowing a robust integration, enabling an insightful stakeholder dialogue and reflect scientific knowledge, skills and competences acquired during the SLE learning path. Moreover, the direct involvement of students in the production of such artefacts allowed them to develop a sense of ownership and provided the opportunity to experiment directly, gaining hands-on experience to apply what they learned in the SLE. Among the artefacts produced by learners, some illustrative examples are:

- **The Mosaic of the community brain**: the mosaic is the result of a collaboration between CÚRAM – the Science Foundation Ireland Research Centre for Medical Devices based at SLE project partner University of Galway – and three other partners (Ballybane Library, Galway Community College and artist Alison Mac Cormaic). The brain-themed artwork blends 30 mini mosaics from students and library staff, symbolising the unity of cell nuclei in the brain, echoing the project's focus on community connection.
- **A book crossing house realised with recycled materials**: the product was developed by school students in collaboration with Italian stakeholders. The book crossing house serves the purpose of raising awareness among pupils about circular economy and sustainability.
- **A botanical e-book** featuring descriptions illustrations and identification keys for endangered plant species.
- **A DIY seismometer** to collect and analyse data: high-school pupils first designed seismic shake tables to understand, study and demonstrate how earthquakes impact structures and buildings. Then following expert instructions, diagrams and materials they built seismometers to collect data from earthquake activity and to analyse them using software tools just like real scientists and researchers do.

You can explore the full portfolio, which showcases all the artifacts created across the various pilots completed in this phase of the project. **Click here** to access the complete collection.

Good practices and success factors

The analysis of the data collected from the pilot SLEs led us to the following conclusions:

There are good practices and benefits achieved for different stakeholders while implementing a learning ecology, particularly addressing **gender stereotypes**. For example, Malta's GirlsforSTEM project sparked girls' interest in STEM through mentorship and female-led activities. Spain's pilot SLE showed a positive gender balance, with more girls participating. In Italy, younger students were less influenced by gender stereotypes. Serbia's SLE was balanced, with significant participation of girls in ICT activities. All SLEs included female role models to address the gender gap, although teachers sometimes struggled to recognize these efforts. However, while positive outcomes were observed for the ability of SLEs to deconstruct gender stereotypes and develop ICT literacy these impacts varied greatly across projects, likely because certain pilots focused specifically on these topics, while others did not directly address them.

Key benefits also included **improved interactions between teachers and students**, increased **student engagement**, and **professional development for teachers** achieved through collaboration with researchers and experts. In Italy, Greece, Cyprus, and Malta, researchers and universities provided new methodologies, open resources, expertise and equipment, enhancing both student learning and teacher instruction.

More specifically, SLEs proved highly effective in **developing 21st century skills.** Initiators reported strong gains in their students' creativity and innovation, collaboration and communication, as well as problem solving and critical thinking skills. Furthermore, SLEs exposed students to real-life problems, sparking greater interest and motivation towards STE(A)M studies and careers.

The **Living labs** approach, as part of the SLEs methodology, contributed to the active participation of various stakeholders, including schools, companies, research institutions, and local communities. These partnerships combined expertise and resources, making learning more relevant and engaging. In Malta, collaborations with companies and universities offered students hands-on experiences in STE(A)M fields. Slovakia benefited from partnerships with foreign schools and regional funds, facilitating student mobility and international collaboration.

Inclusiveness for all students was also a key focus. In Italy, foreign girls overcame language barriers through practical project involvement and group conflicts were overcome by working in teams on ethical and practical projects. SLEs ensured equal participation for all students, accommodating individual needs and disabilities.

Partnerships with companies and schools, and the creation **of international networks created by the project**, enriched the SLEs. In Ireland, a successful SLE inspired other stakeholders to participate in future projects. In Italy, stakeholders involved in the pilot phase act as ambassadors and mentors for future replications. Alignment with stakeholders' goals and enthusiasm of initiators ensured broad participation and support. In Serbia, alumni were eager to mentor students in designing a local school gym. Pilots in Germany and Slovakia generated valuable data for further research, fostering a culture of inquiry and scientific contribution.

Obstacles and challenges

When it comes to obstacles and challenges, all countries agree that the difficulties they face are mostly related to **policy, curriculum, time, and resources**. Designing and implementing innovative school practices requires more time for planning, professional development, and infrastructure arrangements, combined with iterative evaluation and refinement processes.

Legal recognition of teachers' and experts' contributions to innovative education is insufficient, and the lack of compensated working hours for additional efforts, hinders their engagement. **Bureaucratic hurdles** create delays and inefficiencies, delaying and undermining progress.

Teachers often lack adequate support from schools and local communities, including limited resources, insufficient professional development, and inadequate community engagement. This **lack of support** makes it difficult to effectively implement and sustain STE(A)M projects. **Traditional subject-oriented approaches** constrain the flexibility needed for hands-on, project-based learning essential to STE(A)M education, reducing opportunities for creative problem-solving and critical thinking.

Schools are not well-prepared to use technological tools, and ongoing professional development opportunities are limited. Existing training programs may not fully equip teachers to integrate STE(A)M elements into their teaching practices. Centralized education policies create **rigid curricula** that hinder the implementation of STE(A)M approaches, leading to generic lesson plans that limit effectiveness and local tailoring of educational practices.

Financial constraints and initial difficulties in collaborating with industry partners limit the potential of STE(A)M initiatives. **Limited funding** and challenges in forming effective industry partnerships slow progress, and the involvement of multiple stakeholders complicates coordination. Engaging various stakeholders in the co-creation of STE(A)M initiatives is challenging, with teachers concerned about their roles and job security. Balancing the demands of formal curricula and assessments with the time needed for innovative projects remains a significant obstacle.

Integrating STE(A)M into curricula and adopting flexible teaching methods are ongoing challenges. **Administrative barriers** and **traditional teaching methods** hinder STE(A)M implementation. There is a need to revive previously active partnership groups and enhance curricula flexibility to support interdisciplinary teaching better.

Policy recommendations and implications

Based on the evidence gathered and analysed, including the validation process that took place within the 2nd Policy Learning Session, we provide a set of recommendations which can contribute to the advancement of open schooling and STE(A)M learning ecologies.

- It is necessary to provide strong **advocacy for increased funding** and securing structural and long-term financial support for schools and teachers to acquire necessary resources for open schooling projects. Insufficient funding or budget constraints hinder the successful implementation of Open Schooling and SLEs, limiting resources for educational activities, materials, and teacher training.

- Encourage the development of policies that support **curriculum flexibility** to integrate open schooling principles, interdisciplinarity, and inclusiveness is also deemed important. This flexibility will encourage the shift from a strictly subject-oriented approach to a more thematic curriculum and learning, facilitating interdisciplinary collaboration and easing engagement with external actors.

- Currently, most of educational innovations are relying on volunteer teachers and extracurricular activities. To achieve sustainable and continuous educational innovation it is imperative to **integrate these initiatives into the formal curriculum**, ensuring that educational innovation is sustained and embedded in everyday school practices.

- **Developing strategies and policies to enhance gender balance and inclusivity in science education is essential**. Existing policies that do not address gender disparities or biases in education pose challenges in promoting female participation and breaking gender stereotypes, thus requiring additional efforts to overcome systemic barriers.

- **Enhancing the collaboration between educational institutions, research bodies, and industry** is another point to be strengthened. This can be achieved, for example by showcasing the long-term benefits for industries or integrating data in citizen science projects by the research centres. By strengthening these connections education experiences will be enriched and students will experience real-world applications of their learning that will enhance their engagement.

- Promoting the adoption of **innovative educational approaches** and methodologies through training including also the use of experiential learning, game-based learning, and design-based learning. Such approach will contribute to making STE(A)M education more engaging and interactive, ensuring that teachers are provided with training on these innovative approaches and methodologies.

- Creating a robust **support system** for schools and teachers, including professional development and administrative support is of paramount importance. Provide comprehensive training programs to prepare teachers for implementing STE(A)M and open schooling initiatives effectively

- Developing **policies that support community engagement**, strengthening the implementation of open schooling approaches is another key point to be brought to the attention of policymakers. Fostering partnerships between schools, local communities, and external actors is necessary to create a supportive and collaborative educational environment.

- **Supporting the development of policies that prioritize, and support STE(A)M education initiatives** can provide a conducive environment for the implementation of the SLE. Align policies with the goals of promoting interdisciplinary learning and real-world applications,

ensuring that STE(A)M education is integrated into national and regional educational strategies.

- **Policies that promote inclusivity and diversity in education** can finally support efforts to increase female participation and deconstruct gender stereotypes within the SLE, aligning with the project's objectives.

- Establish **clear and standardized definitions of interdisciplinary STEM education** to guide curricula development effectively. A unified understanding can facilitate educators' integration of STEM subjects with the arts, promoting well-rounded STE(A)M learning that aligns with modern, interdisciplinary educational goals.

Overall, the alignment of national and European policy framework with the goals and objectives of the SLEs project can greatly influence its successful implementation. Addressing potential barriers and leveraging supportive policies can enhance the impact and sustainability of the project.

Scale-up and sustainability

In relation to scaling up and sustainability of such practices, it is important to **implement policies that facilitate the replication and scaling of successful open schooling practices**. These policies should encourage the integration of STE(A)M education into standard curricula and support effective innovative teaching methods, drawing lessons and ideas from the SLEs implemented in the pilot phase.

- The participation of at least 3-4 **diverse stakeholders**, including educators, industry partners, researchers, and community members is essential. This diversity enriches the educational experience and enhances the quality of open schooling initiatives. Incorporate a mix of schools with different levels of experience in open schooling, providing tailored support based on their experience levels to ensure effective implementation. This approach helps experienced schools build on their successes while guiding new schools through their first steps. Including schools from less central areas ensures diverse representation and equitable opportunities, bridging the gap between urban and rural education.

- Develop **clear guidelines for stakeholder cooperation**, defining roles, responsibilities, and expectations. These guidelines should allow for flexibility and an elastic timeline to accommodate different implementation stages and varying speeds of adoption. This structured but adaptable approach facilitates smoother collaboration and more effective project execution. Establish a network of experienced schools and stakeholders to share good practices and successful strategies. This network acts as a valuable resource for schools embarking on open schooling initiatives, offering practical insights and proven methods. It also promotes opportunities for peer-to-peer learning among educators, fostering a community of practice where ideas can be exchanged, challenges troubleshot, and support provided.

- Develop comprehensive **strategies for the long-term sustainability of open schooling initiatives**. Integrate successful practices into regular school curricula to ensure continuity and institutional support, embedding STE(A)M education principles into standard teaching frameworks to make them a permanent feature of the educational landscape. Encourage small-scale efforts and low-cost STE(A)M Learning Ecologies (SLEs) to make STE(A)M education more accessible and sustainable. These approaches allow for incremental adoption and experimentation, making it easier for schools with limited resources to participate and benefit while fostering creativity and innovation within financial constraints.

- Establish systems for clear **recognition of teachers' efforts in implementing innovative learning methodologies**. Acknowledging and rewarding educators for their contributions to STE(A)M education motivates them and enhances their commitment to these initiatives. Recognition can come in various forms, such as professional development opportunities, awards, and public acknowledgment of their achievements.

- Enhance **partnerships between formal education and informal education** sectors, such as science centres and museums, which provide **experiential learning opportunities**. These informal education networks bring concepts to life for students, enriching STE(A)M education with **real-world applications**, which increases accessibility and engagement.

- Develop policies to create sustainable partnerships by embedding a **shared ownership model** among schools, communities, and industry partners. Ensuring **young people's active involvement** in such partnerships will make STE(A)M programs more resilient to funding fluctuations, while aligning these initiatives with stakeholders' evolving needs and long-term goals.

From our second year of project implementation, we can conclude that while there has been significant progress in curriculum development, teacher training, and resource allocation in relation to STE(A)M and open schooling policies across Europe, further efforts are required to overcome existing barriers, aligning the national policy frameworks with the goals and objectives of the SLE. Ensuring that STE(A)M education becomes a standard and integral part of the educational experience remains a key goal. By addressing these challenges and building on successful practices, STE(A)M education and open schooling can continue to evolve and thrive.

YEAR 2 PROJECT OUTPUTS

- Portfolio of pilot SLEs: link here
- Read about the latest SLEs activities on the project's website: link here
- SLEs Methodology – Version 2: available here
- Deliverable 3.2: Ecologies Co-creation and Facilitation. Available here

PROJECT IDENTITY

PROJECT NAME

STE(A)M Learning Ecologies (SLEs)

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CONSORTIUM

- European Schoolnet (EUN Partnership AISBL), Belgium - Coordinator
- Agenzia per la Promozione della Ricerca Europea (APRE), Italy
- Center for the Promotion of Science (CPN), Serbia - Affiliated Entity
- Centro Ciência Viva do Algarve (CCVALG), Portugal - Affiliated Entity
- Ellinogermaniki Agogi (EA), Greece
- European Network Science Centres & Museums (ECSITE), Belgium
- Humboldt-Universität Zu Berlin (HUB), Germany
- Ministry for Education, Sport, Youth, Research and Innovations (DCM), Malta
- Museos Científicos Coruñeses (CASACIENCIAS), Spain - Affiliated Entity
- National University of Ireland Galway (NUIGALWAY) - Affiliated Entity
- Norwegian University of Science and Technology (NTNU)
- University of Cyprus (UCY), Cyprus
- WISTA, Germany

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BUDGET	EU contribution 1 999 635 €

WEBSITE	• https://www.steamecologies.eu/ • SLES - STE(A)M Learning Ecologies (scientix.eu)

FOR MORE INFORMATION	Contact the SLEs Coordinator at info-sles@eun.org

COLLABORATIONS	The SLEs project is part of the Open Schooling together (OStogether) network of projects and supported by the Scientix community for science education in Europe.

FURTHER READING	• SLEs Concept White Paper • SLEs Methodology • Open Schooling Policy Brief, Make it Open (MiO) and Schools as Living Labs (SALL) Horizon 2020 projects, with the support of the OStogether network. • SLEs portfolio