Surrounded by Science

Learning Paths towards Science Proficiency

Research and Innovation Action in the European Union's Horizon 2020 Programme

Grant Agreement no. 101006349

Deliverable 7.1

Plan for the Communication and Dissemination of Results

Editor	Angelos Alexopoulos (EA)
Date	24 December 2021
Dissemination Level	Public
Status	Final

The Surrounded by Science project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement no. 101006349. This publication only reflects the author's view and the European Commission is not responsible for any use that may be made of the information it contains.

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The Surrounded by Science Consortium

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Legal Notices

Executive Summary

As part of WP7, this document presents the communication and dissemination plan of the Surrounded by Science project. The objectives of this plan are to:

- Define the communication and dissemination aims, strategy, and objectives
- Identify the key target groups which will get engaged with the project activities, results, and outcomes
- Investigate through a project partners' survey the dissemination strengths of the Surrounded by Science consortium and the channels and opportunities the partners already use and which can be further utilised for the development of communication and dissemination materials
- Outline the scope and process for developing the brand identity of the project
- Describe in detail the tools that will be used for communication and dissemination processes, and also define which tools are considered most effective for interacting with each target group
- Set an action plan upon which the effectiveness of the communication and dissemination of the project is dependent
- Identify possible risks and barriers related to communication and dissemination, and formulate effective responses to those risks and barriers
- Describe the structure and tools that will be used to manage the communication and dissemination efforts
- Define the monitoring and evaluation process and tools to be in place for ensuring that the project will reach its expected impact according to the specified key performance indicators

The communication and dissemination plan is best viewed as a living document. It is intended to act as a guide for the development of the communication and dissemination materials, and more generally as a reference for the Surrounded by Science project partners to understand their role and added value towards maximising the visibility and outreach of the project's objectives, achievements, and results.

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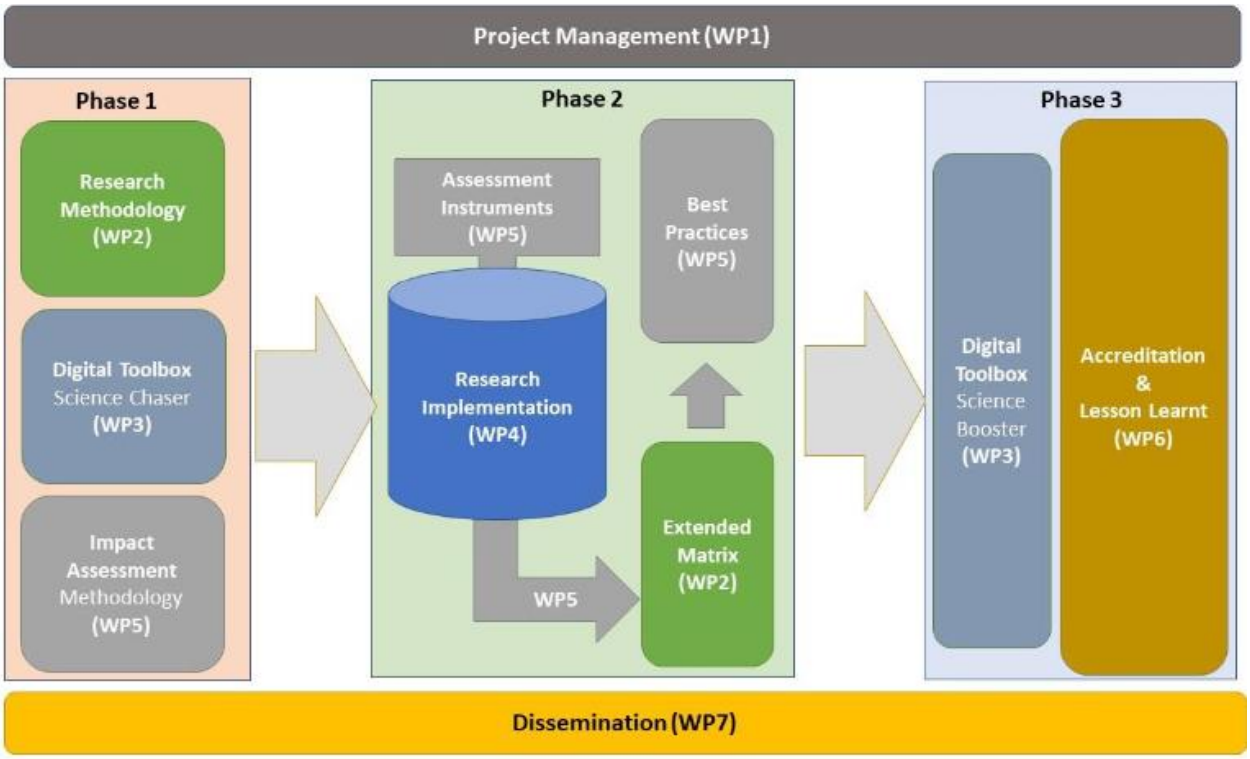
1 Introduction

Surrounded by Science is a Research and Innovation Action project funded under the EU Horizon 2020 programme. The project answers to the call of the European Commission for understanding better how science education outside the classroom influences today's citizens by identifying and evaluating the impact of good practices outside the classroom on both formal and informal science education for students and citizens. The project is coordinated by the University of Twente (UT) and will be carried out for a three-year period (October 2021 – September 2024) by a network of 8 partners from 8 countries (Belgium, France, Greece, Israel, Italy, Netherlands, Norway, and Portugal). The overarching objective of Surrounded by Science is to contribute to the exploration of the nature, effects, and the interrelationships of informal and formal science education contexts, which are considered the building blocks of the wider science learning ecosystem. The project will focus on the analysis and assessment of learners' development of Science Proficiency through personalized and dynamically evolving learning paths within diverse science learning contexts. These contexts include but are not limited to schools, museums, libraries, higher education institutions, businesses, and informal learning programmes.

As specified in the project proposal, a key objective of Surrounded by Science is to implement a systematic communication and awareness-raising strategy that will contribute to the effective dissemination of the project's results and outcomes, and prepare the ground for the continuous monitoring and reviewing of the developed communication materials. In order to achieve this, the Communication and Dissemination work package (WP7) will be acting as a scaffold to support appropriately the dissemination of results of all work packages throughout the three phases of the project (see PERT chart in Figure 1).

Figure 1. *PERT chart of the Surrounded by Science project*



The objective of this deliverable is to provide a comprehensive plan outlining the communication and dissemination aims, strategy, and objectives, as well as the development of the branding identity of the project along with the tools and planning activities, the management and

measurement criteria, and the monitoring and evaluation process that will be employed throughout the project's lifespan. A key part of this plan also entails mapping the target audiences as well as matching of the appropriate communication tools per target audience.

This deliverable aims to serve as the basis and guideline for the design, development and deployment of communication and dissemination materials, channels, and activities over the course of the project. This document is viewed as a living document that will be updated over the course of the project's lifespan, by reflecting the evolving needs of the project, and incorporating stakeholder feedback obtained during reciprocal exchanges with the target groups.

The rest of the document is structured as follows. Section 2 focuses on providing an overview of the communication and dissemination aims, guiding principles, strategy and objectives, as well as highlighting the key messages commonly shared by the consortium that intend to communicate in a clear, concise but also inspiring manner the vision, aims, results, and expected impact of the project.

In Section 3, the audiences at which the project's communication and dissemination activities will be targeted are presented.

Section 4 presents a summary of the results of the project partners' survey that has been designed with the aim to gather information for identifying strengths and opportunities of the consortium that can be used for the planning of the communication and dissemination activities.

Section 5 shifts attention to the Surrounded by Science brand and identity that are considered pertinent to establish, grow, and sustain fruitful relationships with the target audiences. In this section, core elements of the visual identity of the project, such as the logo, will be presented, which, in turn, will inform the design of both internal and external dissemination materials.

Section 6 presents the communication and dissemination channels, materials, tools and activities that are deemed appropriate to maximise the reach and impact of the project. Importantly, the same section provides a classification of the different target audiences, the expected results from the communication strategy, and the tools and channels used to interact with each target audience.

Section 7 presents the action plan upon which the communication and dissemination strategy of the project is largely dependent.

This is followed by Section 8 in which the main possible risks and barriers along with effective responses are presented.

Section 9 specifies the management approach and tools used for the effective organisation and execution of communication and dissemination activities.

In Section 10, the communication- and dissemination-related performance indicators are presented, followed by a series of complementary management tools and processes that need to be in place to ensure the efficient and effective monitoring and evaluation of the progress made throughout the duration of the project to meet those indicators.

In the final and concluding section, a summary of the key aspects of the communication and dissemination plan is provided, followed by outlining the next steps required for the creation of communication and dissemination materials.

2 Communication and dissemination

This section provides an overview of the communication and dissemination aims, guiding principles, strategy, and objectives of the Surrounded by Science project. It also highlights the key messages commonly shared by the consortium that intend to communicate in a clear, concise, and accessible manner the vision, aims, and expected impact of the project.

It is worth mentioning that although the terms communication and dissemination are often used interchangeably, they are quite different. In the framework of Surrounded by Science, as in similar EU projects, communication occurs at project level and is directly related to the objectives, progress, and European added value of the project by demonstrating the project results and their impact on citizens' lives as well as obtaining feedback from them. Accordingly, the primary audience of communication activities is the general public to which information is recommended to be presented in layman terms. On the other hand, dissemination occurs at project results level and is directly related to spreading new knowledge, findings, and methodologies to interested audiences, and specifically to the scientific community, industry players, and policy makers. Accordingly, the "language" of dissemination is recommended to be more technical and demonstrative of scientific excellence.

2.1 Aims

The overall aim of dissemination and communication activities in the framework of the Surrounded by Science project is to accelerate and maximise the visibility and impact of the project, including growing interest in, awareness and uptake of the concept of Learning Contexts by informal and formal science education sectors. This aim is best served by: (a) meaningful and active engagement of well-identified target audiences; and (b) exploitation of project results at local, regional, national, and European levels through well-defined, coordinated, and integrated communication, awareness-raising, and network building activities.

As described in the project proposal, the ambition of the Surrounded by Science project is to underline the importance of a hybrid science learning environment that integrates effectively the contribution of out-of-school learning settings to individual's experience by focusing on the three driving forces: (1) science learning extends beyond the "school walls" as part of: free choice and incidental interactions with technology and media products; participation in non-formal activities offered by scientific outreach programmes; and physical or virtual encounters with designed environments (e.g., visits to informal science institutions such as museums, zoos, etc.); (2) science learning goals are shared across formal and informal science education contexts; and (3) science learning is most effective when it is connected across the settings of school, home, and community organisations.

Based on the above, the project's dissemination and communications efforts aim not only at making the project results available to its target audiences but also at actively involving relevant target groups through establishing a continuous flow of interactions and dialogue between the project and those groups. Ensuring effective knowledge exchange is of strategic importance for it enables the mobilisation of the appropriate stakeholders to help boost the impact of the dissemination and communication activities, and also contributes to the sustainability of the project beyond its lifetime.

Being cognizant of the distinct importance of the project's target groups (as described in Section 3), special attention, from a dissemination and communication point of view, is recommended to be given to two key target groups that are directly related to the Digital Toolbox, since it is the Digital Toolbox that will facilitate the implementation of the research activities and improve

understanding of the impact of out-of-school activities on individuals' learning paths towards Science Proficiency.

The first target group concerns the science organisations for which communication activities should aim at encouraging their active participation as selected cases studies during the pilot implementation (Phase 2, see Figure 1), and eventually the uptake of the Surrounded by Science Toolbox, particularly the Science Booster, into their evaluation activities (Phase 3 and beyond). The second target group concerns the individual participants or users of science activities selected by the project. This group includes school classes and their teachers. Convincing students and teachers to get involved in the project and interact with the partners via the Science Chaser during their activities onsite at the selected case studies (Phase 2), and to take part in the evaluation process to support the impact assessment (Phase 3) is of primary importance if the communication aim is to be achieved.

Recognising and even celebrating the effort of the aforementioned target groups participating in the activities described above may also be part of the Surrounded by Science communication and dissemination approach, for it is the active engagement of these two groups that will to a large extent shape the development of the roadmap for an accreditation scheme for out-of-school organisations (WP6) towards a hybrid science learning environment. Developing trustful relationships with these groups may be crucial to attracting their interest and creating the critical mass needed to effectively spread the uptake and benefits of an interconnected science learning ecosystem as envisioned by the project.

An additional important parameter in contributing to the maximisation of dissemination efforts is the selection of the appropriate public copyright licence solutions that will allow the sharing, use and re-use, adaptation and remix of the work created in the framework of the project. For example, and consistent with the Grant Agreement, partners must ensure open access to all peer-reviewed scientific publications relating to the project's results. They are also encouraged to target sector specific magazines to encourage stakeholder engagement with the project.

2.2 Guiding principles

Dissemination in the framework of Surrounded by Science is based on a set of six principles that will guide partners' efforts to reach the dissemination aims throughout the duration of the project. These guiding principles are as follows:

Openness and collaboration

- We will carefully support and track project partners' dissemination and exploitation activities by establishing good working relationships with each partner organisation and the person responsible for dissemination within this organisation
- Regular two-way communication with this person will be maintained throughout the project lifetime and easy-to-access tools for reporting will be provided
- Partner tasks in respect to dissemination will be explicit, openly shared, and regularly reviewed with reference to their overall ambition and dissemination potential
- We will endeavour to talk and listen to our partners on a regular basis.

Responsiveness

- We plan to be as responsive as possible to all partners and will encourage them to reciprocate
- Not communicating is the surest way to undermine trust and effectiveness
- If communication is failing, we would like to address the issues quickly and either find alternatives or emphasise the need to communicate
- The need to answer e-mails promptly and attend meetings needs to be established at the very beginning of the project and sustained throughout its lifetime.

Clarity and explicitness

- Both in terms of our communication with partners and with the external world, we are mindful of the need to be clear, explicit, and concise. This is particularly important when dealing with European cross-border communications addressing multilingual targets with a wide variety of expectations and experiences
- We will strive for brevity where possible, ensuring all communications are carefully edited to ensure they are short and to the point.

Quality-driven ambition

- Communication activities will be based on high-quality materials and processes. All text-based resources and communication will be rigorously edited to ensure they meet the high standards expected in a project such as this
- When communicating with an audience, variety can go a long way. Many people comprehend new information better when visuals are being used. Accordingly, we will more effectively connect with our target audience by using compelling visuals to draw in our audience and explain our point in addition to just text.

Inclusiveness

- Communication materials and activities will follow an inclusive approach by acknowledging, respecting and valuing the diversity and varied needs of our target audiences
- The consortium partners will be following guidelines and recommendations concerning inclusive communication (see Appendix I).

Responsibility

- A certain amount of personal data will be collected from external parties. The team will ensure that all such data collection and the eventual management of such data will conform with partners' policy in relation to GDPR
- The team will ensure that they adhere to all relevant copyright restrictions in relation to the use and re-use of images, video materials, and text.

2.3 Strategy and objectives

Surrounded by Science is a relatively large and demanding research and innovation project with a three-year timeframe. The communication and dissemination strategy is recommended to be

proactive, inclusive, adaptive, and resilient to unpredictable changes as the project evolves, especially due to the COVID-19 pandemic crisis. At the same time, the strategy requires a clear, practical, swift, and target-driven approach, while tapping into the strengths of the networks that each partner brings to the Surrounded by Science consortium that are anticipated to help reach a large and diverse audience that includes not only formal and informal science education providers but also the research community, industry, commercial actors, professional organisations, and policy makers. In a nutshell, and according to the distinction between communication and dissemination described in the introductory part of Section 2, the Surrounded by Science project will employ two complementary approaches to maximise its impact:

i. *Communication approach:* Engage well-defined target groups in the project activities by establishing a reciprocal exchange both with science organisations, the public and policy stakeholders that extends beyond the project's immediate community

ii. *Dissemination approach:* Stimulate the public disclosure of the project activities, tools, and results to the target groups.

This two-folded approach to communication and dissemination is recommended to be structured into six main steps as follows:

i. Identification of clear objectives

ii. Establishment of key target audiences

iii. Customised selection and utilisation of appropriate channels, materials, tools, and activities per target audience

iv. Identification of key performance indicators (KPIs)

v. Execution of targeted actions aligned with the target audiences and KPIs

vi. Continuous monitoring and evaluation, and regular adaptation to changing circumstances as the project evolves amidst changing circumstances due to the pandemic crisis.

The objectives of the project's communication and dissemination strategy are shown in Table 1.

Table 1. *Objectives of Surrounded by Science communication and dissemination strategy*

• Provide an integrated and solid external image of the project, facilitating its widest possible reach, raising awareness about it, and attracting the relevant target groups • Ensure the maximisation of the visibility of the project's actions, activities, and events • Disseminate extensively the results of the project to target audiences using diverse channels, materials, tools, and activities customised to their context • Disseminate to a wide range of stakeholders the learnings and materials produced • Tap into partners' networks and build synergies and joint actions with sister EU projects in which the partners are involved • Leverage partners' local, national, and international networks formed with formal, non-formal, and informal educational institutions

A key parameter in reaching the objectives outlined in Table 1 is to ensure that communication and dissemination are always part of the agendas in the project meetings, and that simple, accessible, and time-savvy tools are provided to the partners to assist them in documenting, communicating, and reviewing in a uniform and transparent way their dissemination work to the Surrounded by Science Project Management Committee and the consortium at large.

2.4 Messages

The effective deployment of the communication and dissemination strategy requires, amongst other actions, the formulation of a series of communication messages commonly shared by the Surrounded by Science consortium that can be utilised to converse in a clear, concise, but also inspiring manner the vision, aims, results, and expected impact of the project.

Derived from consultation with the project partners, the consortium has come up with a set of messages. As presented in Table 2, these messages will be further analysed in the process of developing a smaller set of core messages that will serve for the presentation of the Surrounded by Science project. This analysis will inform the development of the project's branding identity and the creation of the dissemination and communication materials (D7.2).

Table 2. *List of communication messages shared by the Surrounded by Science consortium*

Messages
• Science is everywhere. • Science is the way ahead. • All can be creative in science. • We are surrounded by science every day and everywhere. • Formal science (or STEAM education) is only one aspect of how we learn science. • Certifying the skills acquired in the non-formal and informal fields means moving towards greater autonomy and awareness of the individual. • Unless every experience generates learning, every learning constitutes an experience. • Any opportunity is good to learn! • To understand the world around us, we need to learn about science. • You can also learn about science in your spare time. • Science learning is fun. • Science learning should be accessible for all. • Bridging the gap between science and everyday life. • Science learning can happen anywhere and at any time. • You don't have to be a scientist to learn and understand science. • You can learn science at any age and at any level. • Science should come to children, so later grown children can come to science. • Important science learning regularly happens out-of-school. • Learn the scientific culture and develop policy recommendations. • Science is for everyone who wants it. • Children are the future in science.

- The kind of learning without structure or organization that we all do on a daily basis without realizing it, in line with the current and future needs of the society, to be optimized, it must first be validated!
- There are many ecologies outside the classroom that allow children to explore STEAM in a meaningful and enjoyable way.
- A mix of activities originating from different ecologies together build science proficiency
- Science learning can happen anywhere and at any time. Every experience (inside or outside the classroom) can be a catalyst for learning. Calling these learning moments for discussion and consolidation is an ongoing effort in science education and science communication, bridging the gap between students' daily lives and formal science learning.
- When you watch, read, listen to or do something, you learn. Choose to learn science.
- Science is not an activity limited to school. Science is everything that happens around us. For this reason, we need to open a debate with policy makers and stress the importance of providing challenging ideas and activities for the whole society.
- The world around us is rapidly changing. With it, the concept of education as well. It is important to create new frameworks and develop recommendations into educational policies on what educational activities are, updating the learning ecosystem.
- Out-of-school science activities can be a booster to bridge the gender gap in scientific activities. On a broader level, policy makers and institutional stakeholders have a say in designing more inclusive policies and programmes.

3 Target groups

The timely identification of the project's main target groups (or audiences) along with their specific interests and role in the project is key prerequisite for maximising the impact that the Surrounded by Science project is expected to make. Central to this is the distinct advantage that the consortium partners hold to mobilise the appropriate stakeholders according to their capacity to reach out and inform their networks and communities. For example, the consortium partners can encourage providers of out-of-school science education to participate as selected case studies during the project's research implementation phase, and use the Digital Toolbox in order to improve the design of their activities. To also note that the results of the Partners Survey, as presented in Section 4 and detailed in Appendix II, are a useful resource that can help identify and plan communication and dissemination activities according to the outlets, forums, EU projects, and networks in which the consortium partners are involved.

In this section, the main target groups are presented along with the communication and dissemination goals per target group, and the partners which are deemed appropriate to reach out and mobilise each group to get engaged with the project's activities, results, and overall impact. These are shown in Table 3.

Table 3. *Main target groups, goals, and existing connections among partners*

Target group	Goal	Partners
Providers of out-of-school science education (non-formal and informal science education providers and providers of non-educational activities with science education effects)	• To raise awareness and promote active collaboration in Surrounded by Science activities as case study and good practice • To encourage the use of the Science Chaser app among their participants and provide information to users about their activities • To use and apply the Science Booster app to improve their activities	EPS, WIS, IDIS, NUCLIO
Formal science education providers (e.g., teachers, school heads, teacher networks, teacher training institutes for in- service or pre-service teachers etc. and students)	• To encourage students in taking part in the Surrounded by Science activities and to incorporate results of the project in their everyday activity • To inform them about the opportunities of out-of-school activities for formal education	EPS, EA, IDIS, WIS, NUCLIO, NTNU

Broad public/citizens (all ages and educational levels, audience beyond the project community, accessible via the institutional activity of the consortium) members and various communication tools and channels.	• To accomplish effective Parental Engagement and encourage an active role in their children's skills and competence development • To raise awareness of the opportunities offered through the Science Chaser app • To explain the goal of the project and encourage the participation during the visited out-of-school activities	All partners through their communication channels
Parents (especially of pupils in K12 school education)	• To accomplish effective Parental Engagement and encourage an active role in their children's skills and competence development • To raise awareness of the opportunities offered through the Science Chaser app • To explain the goal of the project and encourage the participation during the visited out-of-school activities	EA, NUCLIO, IDIS, WIS
Research and scientific community (universities, research centres and networks in non-formal and informal science education)	• To raise awareness and promote active collaboration in Surrounded by Science activities as case study and good practice • To engage and to promote the concept that research community must find new approaches to bridge out-of-school activities with formal education • To encourage the use of the Science Chaser app among their participants and provide information to users about their activities	UT, WIS, NTNU
European policy makers and public sector actors (educational policy makers, i.e., Ministries of Education, Pedagogical Institutes, etc.)	• To encourage their interest in and mainstreaming of good practices • To showcase the opportunities for an accreditation to accredit activities or organisation with proven impact on science proficiency • To take up the certification system developed in the project • To share recommendations into educational policies	LC, EPS, UT, WIS

4 Channels and opportunities

4.1 Aims

To investigate the dissemination strengths of the Surrounded by Science consortium and to identify channels and opportunities that can be utilised as part of the dissemination planning, a survey was administered to the consortium partners. Specifically, the aims of the survey were twofold:

1. To map dissemination channels that the partners already have at their disposal.

2. To identify existing dissemination networks and communications channels that partners already know about and which might be useful for reaching out to Surrounded by Science target audiences.

4.2 Procedure

The questionnaire was organized in six sections gathering quantitative and qualitative data on: (1) general communication channels of the partner's organisation, such as the partner's website, newsletters, etc.; (2) main target groups interested in partners' activities; (3) dissemination channels and mechanisms managed by each partner in respect to their target audiences; (4) conferences, seminars, workshops, exhibitions, fairs, etc. in which partners regularly participate and/or which they regularly organise; (5) European, national, regional and sector-specific communication channels used by the partners; and (6) other relevant projects, networks, initiatives in which partners are currently involved.

Each section contained a variable number of questions. The questions for which percentages have been provided and graphs have been generated are documented in Appendix II, which also includes information that partners provided in respect to sections 4, 5, and 6 of the survey.

The contributors per partner organisation are shown in Table 4.

Table 4. *Contributors to the project partners' survey*

Contributor	**Partner organisation**
Luigi Cerri	IDIS
Tessa Eysink	UT
Rosa Doran	NUCLIO
Francesco Mureddu	LC
Sofia Papavlasopoulou	NTNU
Angelos Alexopoulos	EA
David Lee	EPS

4.3 Results

The results of the survey presented below intend to serve as an initial guide to help map out, better understand, plan to improve, and create synergies amongst the Surrounded by Science

consortium partners to align their communication and dissemination efforts. As such, the results will be reviewed and extended in the follow-up reports.

Concerning the main target groups interested in partners' activities, the main takeaway is that the largest target group for partners is represented by schools and the educational ecosystem (students, parents, educational authorities). The general public is also mentioned, alongside policy makers (especially from the European Commission) and MS central governments.

Secondly, almost all partners maintain a database of their target audience, except for one. Partners communicate with their target groups differently: half of them weekly, while the other half ranges from once per month to 2-3 times per year.

Almost all partners plan to expand their dissemination work in the next two years of the Surrounded by Science project by taking specific actions including: hiring dedicated personnel, increasing their stakeholders' database, expand their network, and re-designing their websites. IDIS reported that their dissemination strategy depends on an annual communication plan submitted upon approval by the Management Office and that it is not foreseen to expand in the future. However, it may be adapted to the circumstances from time to time.

The types of communication tools that the partners use to engage with their target groups are similar and include newsletters; social media; and conferences, the vast majority of which organised virtually because of the pandemic crisis. Concerning the use of social media, partners rely mainly on the use of Facebook and Twitter. They all also use the official website of their organisation as a standard communications gateway. According to the results of the survey, the partners reported that their target audiences are both international and local. Interestingly, no differences in the type of communication between the two types of audiences were mentioned. Other dissemination channels consist of digital and paper press, advertising clips, meetings in different research areas and participation in several conferences, some of which organised by the partners.

In terms of each organization's website target audiences, partners' responses indicate a large variety of audiences. These range from scientists and researchers, professionals, and businesses, to cabinets of the European Commission, civil servants from the European Commission, teachers, parents, and informal education providers.

Concerning the use of news updates posted on their websites, the large majority of the partners answered positively. The frequency with which they post news items ranges from weekly to monthly. Most of the partners have communication or marketing departments, coordinators and contributors who oversee the process. Half of the partners produce newsletters or magazines (no distinction made between online or paper-based). Moreover, two thirds of the partners track visitors on their main website. Half of the partners have provided an estimate of the average number of unique visitors per month. Answers range from 10,000 to 15,000 per month, with an outlier of 15,000 visitors per day in one case. Finally, the majority of the partners convene conferences during their activities in their fields of operation. On the other hand, only EPS reported to have award schemes in place.

Detailed information on the results of the survey is available in Appendix II.

The results of this survey will help inform work related to Task 7.2 which includes, among other sub-tasks, the mapping of liaison activities with similar projects, organisations, and initiatives, and also the establishment of continuous contact with key stakeholders outside the Surrounded by Science consortium.

5 Brand identity

To reach its communication and dissemination objectives, the Surrounded by Science project needs to create a distinct brand identity for its stakeholders to relate to. Being intentional with your brand builds trust fast, which in turn leads to increased engagement and loyalty. In the case of Surrounded by Science, reaching out to the target groups described in Section 3 and establishing a steady and engaged audience composed of a diverse set of target groups, including individual participants as well as science organisations, educational policy makers, and the scientific community calls for a thoughtful and inclusive approach to the development of the project's brand identity that listens to, respects and taps into the experience, expertise, and viewpoints of the consortium partners.

5.1 Developing the brand identity concept

Based on an analysis of the Partners Survey (see Section 4) and the internal communication amongst the consortium partners about the visual identity of the project, this section serves as a summary intended to be helpful for defining the "role" and raison d'être of the Surrounded by Science brand identity concept that is a prerequisite for designing the logo and the visual identity of the project.

At a general level, the brand identity development process is made up of what your brand says; what your vision and values are; how you communicate your product or service; and what you want your target audiences to feel when they interact with it. The development of the brand identity concept is considered as a dialogic process, during which the vision, expectations and viewpoints of the consortium partners are shared openly towards reaching a consensual decision on the visual identity of the project. This will ideally reflect and promote the overall identity of the project and the shared key messages to: (i) communicate the objectives, progress, and European added value of the project; and (ii) spread new knowledge, findings, and methodologies to interested audiences, and specifically to the scientific community, industry players, and policy makers. The resulting brand identity will essentially be a genuine representation of what the project actually does and why. This, in turn, will play a decisive role in the relationship that the consortium will cultivate and maintain with their various target audiences through the creation of communication and dissemination materials and activities adapted to each type of audience and the communication channels that each of these audiences are accustomed to use.

A closer look at the messages which the partners came up with (see Section 2.4), combined with written suggestions made by partners and communicated across the consortium though emails, may be a good starting point for summing up "what the project actually is and does" by taking into consideration the added-value proposition of the project. It can be argued that the Surrounded by Science concept is about bridging out-of-school science learning into formal science learning, with the latter defined as learning science in a school setting. The word "bridging" can widely be perceived as a constructive effort or action that provides a structure spanning and providing access over a chasm, or the like. It can also be perceived as a connecting, transitional, or intermediate route or phase between two or more adjacent yet previously fragmented elements, activities, conditions, or the like. In the framework of Surrounded by Science, "bridging" refers to spanning the gap between the two worlds of informal and formal science learning. Accordingly, the added-value proposition of the project is that it can act as a boundary-spanner by developing an appropriate catalysing process, that is, a connected science learning ecosystem in which formal and informal science education stakeholders go beyond the bounds of their institutions and embrace a network bridging approach. This approach builds on the strengths of synergistic actions that, in turn, help young people bring the gestalt of their encounters with a wide range of informal and formal science learning into their life experiences that are likely to inform their aspirations in personal, professional and civic spheres.

The word “ecologies”, which has also been frequently mentioned in the messages, refers to learning contexts, including the physical settings, social interactions, value systems, and histories, in which people learn over time. Accordingly, the added-value proposition of the project as far as the learning contexts is concerned, is to analyse and assess learners’ development of Science Proficiency through their individual learning paths within diverse science learning settings, both informal and formal. Science Proficiency is a six-strand model aimed at capturing cognitive and affective learning outcomes derived from individuals’ interactions within both informal and formal learning settings. In other words, Science Proficiency is a standardized framework to be used by the project to monitor the individual learning paths by highlighting the impact of out-of-school science learning activities on formal schooling within the integrated learning ecology. One relevant message here, as expressed by a member of the consortium (see Table 2), is that given the rapidly changing world around us, including the world of education, “[i]t is important to create new frameworks and develop recommendations into educational policies on what educational activities are, updating [or expanding] the learning ecosystem.” This message communicates succinctly the Surrounded by Science vision and its envisaged contribution to a better understanding of the nature of informal science learning but also its strong potential for effectively integrating informal activities into formal science education policies, strategies, and practices consistent with an Open Schooling culture as a strong driver for developing the future paths for schooling that build on the strengths of both formal and informal learning settings[1].

5.2 Logo and visual identity

Perhaps the first and foremost association that people make with any project is its visual identity and more specifically its logo. The Surrounded by Science project logo is and should be treated as an indispensable visual element in all dissemination materials and actions. Specifically, the logo shall be used in the communication channels and tools presented in Section 6. It is also highly recommended that the logo should be used in official communications (emails and letters) sent to third parties and the public. In general, the logo should be present and visible in all events that the project organises, participates in or is mentioned by a project partner, external stakeholder or third party.

Besides the project’s logo, and in accordance with the operational guidelines for recipients of EU funding[2], each communication dissemination material and activity which promotes the project in any way (including conferences, seminars, informative or promo material such as leaflets, brochures, posters, presentations etc.), must:

a) display the European Union emblem: https://eacea.ec.europa.eu/about-eacea/visual-identity-and-logos-eacea/erasmus-visual-identity-and-logos_en.

b) indicate that the action has received funding from the European Union.

When displayed in association with the project logo or any other logo’s, the European Union emblem must have appropriate prominence. The obligation to display the European Union emblem does not confer on the beneficiaries a right of exclusive use. The beneficiaries may not appropriate the European Union emblem or any similar trademark or logo, either by registration or by any other means.

Any communication or publication that relates to the Surrounded by Science project made by the beneficiaries jointly or individually in any form and using any means, must indicate that: (a) it reflects only the author’s view; and (b) the European Commission is not responsible for any use

[1] OECD. (2020). *Back to the future of education: Four OECD scenarios for schooling*. Organisation for Economic Cooperation and Development.
[2] https://ec.europa.eu/info/sites/default/files/eu-emblem-rules_en.pdf

that may be made of the information it contains. A standard sentence covering both points is suggested to be the following:

"The information and views set out in this [publication, communication, etc.] are those of the author(s) and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies, nor any person acting on their behalf may be held responsible for the use which may be made of the information contained herein."

The EU emblem and associated EU logos are placed in a dedicated folder in the General Channel in the Teams environment, which is the shared workspace of the project.

The EU has a specific set of rules that all partners need to follow when communicating. The funding needs to be clearly indicated and the emblem and flag of the EU included. A checklist of the compulsory elements for all communication and dissemination materials is provided in Appendix III.

5.3 Templates

Internal and external communication and dissemination materials will follow a uniform style in line with the visual identity of the project. All templates for internal and external use will be placed in a dedicated folder in the General Channel in the Teams shared workspace of the project.

Specifically, templates for communication and dissemination purposes will be developed for:

- external reports
- selected deliverables
- special reports based on the contents of specific deliverables
- press releases and announcements
- e-newsletters and e-mailing campaigns
- posters, leaflets, brochures, factsheets, and infographics
- PowerPoint presentations
- Website
- social media accounts.

6 Communication and dissemination tools

6.1 Approach

To amplify the visibility and outreach of the project's objectives, results, and achievements, a dual approach will be adopted by relying on and exploiting two communication and dissemination channels: those that will be developed and handled centrally by the project; and those that have already been developed and used by the partner institutions. Indicative channels are shown in Table 5.

Table 5. *Surrounded by Science dual approach to communication and dissemination channels*

Project channels	**Partners' channels**
• Project website • Project social media • Project events (e.g., conferences, workshops, meetings, etc.)	• Partners' websites • Partners' social media • Partners' channels (e.g., newsletters, blogs, emailing lists, etc.) • Conferences, events, and workshops in which the project partners participate

The effectiveness of this approach will be largely dependent on the degree of collaboration between the Communication Offices of the partners' institutions and the Surrounded by Science consortium. To ensure that collaboration will be successful, a Communication and Dissemination Taskforce (CDT) is recommended to be established. The structure, role and responsibilities of the CDT are described in Section 9.1.

6.2 Description of communication and dissemination tools

The Surrounded by Science project will employ a range of tools to ensure effective communication dissemination, leveraging both online and offline tools and activities to project partners to go further in terms of reach and impact to the target groups as defined in Section 3. These tools include:

- Communication and dissemination branded materials
- Website
- Social media accounts
- E-newsletters
- Press releases
- Project events
- External workshops, conferences, and events
- Scientific and non-scientific publications

These tools are described below in terms of their objectives and design. This is followed by subsection 6.2.9 that specifies which tools will be used for which target group.

6.2.1 Communication and dissemination branded materials

Objectives: To disseminate information about the project on European, national, and local level and promote shared messages, results, achievements, success stories on various internal and external events in the form of flyers, posters, brochures, factsheets, infographics, PowerPoint presentations, videos, and animations (including videos with end-users).

Design: Printed and digital materials in line with the project's visual identity, delivered in an editable format to enable translation to local languages by the project partners to disseminate them among their networks.

6.2.2 Website

Objectives: To act as the central component that anchors external online communication actions and serves as the focus point for stakeholder engagement by: (i) providing information targeted to the different types of stakeholders to help them understand why they should get involved and how they can participate in project activities (e.g., partner profiles, database of past and future events across Europe, etc.); (ii) gathering, managing, and presenting the information and tools such as the Digital Toolbox in an easily searchable format, relevant information from the project as well as relevant external sources consulted throughout the projects' lifespan; (iii) hosting the project's output and deliverables; and (iv) linking and integrating the social media tools.

Design: The website will use a commonly used Content Management System (e.g., WordPress) with a system of permissions that will allow all members of the CDT to upload and edit content to the website, including information on the project's scope, vision, and approach, partner profiles, news and events, outputs and deliverables, selected dissemination branded materials, (e.g., factsheet, infographics, videos, and animations, etc.), and contact form. Moreover, social media feeds will be integrated into the home page. The website will be available in English. Social media sharing buttons and newsletter subscription will also be available on the relevant pages. When the Digital Toolbox will be available, a separate section will be designed to offer information and functionalities related to the Digital Toolbox.

6.2.3 Social media accounts

Objectives: Social media accounts will be created following the project's visual identity. These accounts will be shared both with internal and external stakeholders to reach and interact with the target audiences to enhance the project's visibility and impact.

Design: There will be four main social media channels to narrate the objectives, results, resources, activities and events, success stories and achievements of the project. The first will be Facebook, a social media platform that is appreciated by formal as well as informal education communities, and in which all consortium partners are active. Cumulatively, the Facebook pages of all partners exceed 247,000 followers. Twitter will be the second social media platform, which is an engaging destination for professional audiences and key external stakeholders, sister EU projects, policymakers, public sector actors, and businesses. The aim here is to build on the consortium partners' existing Twitter audience base, which currently exceeds 90,000 followers. Similar audiences are also engaged in LinkedIn, which is suggested to be the third social media channel of the project. The fourth social media channel will be Instagram, a rapidly growing platform that is particularly appealing to Gen Z learners. To note that Instagram is much more than a photo-sharing platform. Over the last few years, it has introduced a range of interactive features such as stories and live videos, and more recently the so-called Instagram collaborations on posts, that allows two separate accounts to partner up on relevant posts and reap the benefits of a wider reach and engagement. This may be particularly suitable for establishing digital

collaborations with key stakeholders both within and outside the Surrounded by Science ecosystem.

Two optional social media accounts may also be created. The decision of whether or not these accounts will be included in the Surrounded by Science communication and dissemination toolkit will be decided by the WP7 leader based on consultation with WP7 task leaders (NUCLIO, LC) and the CDT.

The first optional social media tool is a Surrounded by Science YouTube channel in which the video material (e.g., video interviews with end-users, animations, etc.) can be uploaded and shared with the general public. The second one is a Surrounded by Science TikTok account. TikTok is essentially a short-form video app that has exceeded one billion monthly active users globally, having a 11,157% increase in its global userbase between January 2018 and July 2020. In addition, TikTok is the most engaging social media app, with an average length of 10.85 minutes. In September 2021, TikTok has risen to be the 7th ranked social network worldwide. In terms of demographics, 47% of its users in the US are people aged 10-29 years[3].

Taken together, these two optional social media accounts may enhance the engagement of diverse audiences with the project's multiple goals as described in Table 3.

EA will be responsible to set up the social media accounts. The management of the accounts will be shared between EA, LC, and NUCLIO. Partners will be encouraged to collaborate with EA, LC and NUCLIO to produce material for the project's social media and also use their own channels for promoting the project to their audiences.

Social media will be active throughout the project's lifespan and remain accessible for any other future initiative relevant to the Surrounded by Science project.

6.2.4 E-newsletters

Objectives: To raise awareness on the opportunities and added value of in/formal science learning experiences and highlight the benefits of the Science Chaser and Science Booster apps for students, parents, broad public, as well as formal and informal science education providers, and the scientific community. The e-newsletter will share news and resources, activities in which partners will be involved. Emphasis will be placed on promoting project results and achievements, case studies, success stories and testimonials by end users.

Design: The content and editorial curation of the e-newsletter will be coordinated by NUCLIO with consultation primarily with EA and LC but also with the CDT. The e-newsletter will be distributed digitally using Mailchimp.

A newsletter template will be created by EA in collaboration with NUCLIO and LC and will contain the following elements:

- Logos of all contributing partners
- Calendar of forthcoming events
- Insights from selected exemplary activities in out-of-school education
- Interviews/in depth texts about the added-value of bridging informal and formal science learning experiences
- Showcase of the Surrounded by Science Digital Toolkit including testimonials of end users' and informal science organisations' experiences with the Science Chaser and Science Booster apps respectively

[3] Source: https://backlinko.com/tiktok-users

Partners featured in the newsletter will be asked to draft their respective sections and send up to three high resolution pictures to illustrate their stories/case studies/activities.

The newsletter will be published on a 3 monthly basis and be coordinated by NUCLIO. The editorial management of the newsletter will be in line with the project's milestones. For example, the first release of the Science Chaser along with the inventory of exemplary activities that are scheduled for M12 are recommended to be prominently featured in the newsletter. The first newsletter will be published on March 2022 (M6).

6.2.5 Press releases

Objectives: To inform the broader public on the project's milestones and main results and to get press coverage of the project activities.

Features: The press releases will be made available to partners both in .pdf (English) and in a Word format to allow adaptations and translations.

An indicative list of the milestones that will be the subject of press releases includes but is not limited to:

- The Surrounded by Science webinars (M6-M36)
- The first European event for policymakers (M12-M14)
- The Surrounded by Science key characteristics and matrices (M12)
- The first release of the Science Chaser app (M12)
- The first short policy brief (M18)
- The initial impact assessment report on selected best practices (M24)
- The second European event for policymakers (M24-M26)
- The final Surrounded by Science conference (M30-M36)
- The roadmap for designing effective out-of-school science activities (M36)

6.2.6 Project events

Objectives: The Surrounded by Science consortium plans an extensive range of project events, including presence in out-of-school science activities, and thematic meetings with experts in in/formal science education. Specifically, there will be 2 yearly events organised by the Surrounded by Science consortium (M12-M14, M24-M26) and 4 webinars on the practicalities of using the Surrounded by Science Digital Toolkit (M12-M36).

6.2.7 External workshops, conferences, and events

Objectives: The participation of Surrounded by Science in external events, conferences, information sessions, science fairs, etc. will contribute to raise the profile and outreach footprint of the project. An indicative list of opportunities in 2022, based on the results of the partners survey (Appendix II) is presented in Table 6.

Table 6. *Indicative list of external events scheduled in 2022 as future opportunities for dissemination*

Event	Partner(s) involved	Target group(s) and envisaged contribution
Athens Science Festival 2022, April, Athens, Greece	EA	~20,000 students, parents, general public; workshops for teachers
National conference for the use of ICT in learning and teaching (Conference in Norway for Norwegians mainly with the acronym "NKUL"), 11-13/05/2022, Trondheim, Norway	NTNU	~1,000 teachers and educators but also researchers and companies; presentation of Surrounded by Science project, its objectives, research methodology and ICT tools
Ecsite Annual Conference 2022, 02-04/06/2022, Heilbronn, Germany	UT, IDIS, NTNU	~1,000 science engagement professionals; panel session about the exploration of the nature and effects of science education outside the classroom as part of the wider science learning ecosystem, aimed at inspiring science engagement organisations to review their strategic priorities under a new vista of pathways, from redefining best practices and ICT opportunities to considering accreditation schemes for out-of-school science education.
ESA-GTTP 2022 Training, October, Madrid, Spain	NUCLIO	20-30 (face-to-face), 200 online teachers; training workshop for teachers on Surrounded by Science methodology, digital tools and research activities
EDEN Open Classroom Conference 2022, October, Athens, Greece	EA	~180 physically & ~500 virtually Teachers, school heads, researchers, policy makers; presentation of the Surrounded by Science project and dedicated workshop for teachers on exemplary activities and use of Science Chaser

6.2.8 Scientific and non-scientific publications

Objectives: To publish findings, insights, opinion pieces, and interviews in scientific and non-scientific publications.

A suitable outlet for participating schools to publish their experiences with the exemplary out-of-school activities and the Science Chaser app is the peer-reviewed Open Schools Journal for Open Science[4].

The consortium will elaborate an editorial plan in close collaboration with the assessment activities conducted under the coordination of WP5 Leader (WIS) and with the contribution of UT, EA and NTNU. This plan will outline the academic journals, which will be considered as most suitable for submitting the project's results. An indicative list of academic journals is presented in Table 7.

Table 7. *Indicative list of academic journals of interest to the Surrounded by Science consortium*

Journal of Science Education and Technology
Studies in Science Education
Science Education
Research in Science Education
Educational Psychologist
International Journal of Science Education
Journal of Research in Science Teaching
Cultural Studies of Science Education
New Directions for Evaluation
Journal of Educational Policy

Concerning non-scientific publications, it is highly recommended to consider Spokes, Ecsite's online science engagement magazine[5], for in-depth articles that can reach more than 2,200 subscribers from the European science engagement community, bringing together more than 200 science centres/ museums as well as representatives from academia, business, and policy making, committed to inspiring people with science and technology.

Additional outlets of interest include:

- Europhysics News[6], the magazine of the European physics community owned by EPS and produced in cooperation with EDP Services
- Science News[7], published by the Society for Science, a non-profit membership organisation dedicated to scientific research and education

[4] https://ejournals.epublishing.ekt.gr/index.php/openschoolsjournal/index

[5] https://www.ecsite.eu/activities-and-services/news-and-publications/digital-spokes

[6] https://www.europhysicsnews.org

[7] https://www.sciencenews.org

- Research*EU Magazine[8], published by the EC, highlighting most promising project outcomes in a range of domains, with a focus on a particular theme in every issue

6.2.9 Use of communication tools per target group

Matching communications tools with the targeted audiences is of critical importance for maximising the dissemination impact that the project aspires to make. Appendix IV shows the different target groups, the results expected from the communication strategy and objectives, the key messages as expressed by the consortium partners, and the suggested channels used to interact with each target group.

[8] https://cordis.europa.eu/research-eu/en

7 Action plan

The effectiveness of the communication and dissemination strategy and objectives of the project is to a large extent dependent upon the formulation of an action plan that is applicable to all partners and specifies:

- the key communication and dissemination tasks to be completed
- when those tasks need to be completed
- the partner(s) responsible to complete the specified task(s).

The action plan is recommended to be ordered chronologically and based around the project's key activities and outputs. The compilation, adjustment and update of the action plan will be under the coordination of EA with consultation and advise provided by NUCLIO, LC and the CDT.

The action plan will be directly related to the project's key activities and outputs including:

- Development of the Science Chaser and Science Booster apps:
    - Conceptual design of the Science Chaser app (M6)
    - First release of the Science Chaser app (M12)
    - Final release of the Science Chaser and Science Booster apps (M36)
- Inventory of activities and selected case studies (M12)
- Selection of best practices (M24)
- Implementation of the case study onsite research (M16-M32)
- Assessment of case studies and app data (M22-M36)

The project has also a list of milestones that the communication strategy will use as anchor points. Below there is a list of events and outputs:

Events

- 20 dissemination events (M1-M36)

Outputs

- 200 stakeholders involved in the Scanning the Horizon Exercise (M2-M12)
- 10,000 participants (5,000 students and 5,000 citizens) in the case studies (M16-M32)
- 20,000 downloads of the Science Chaser app (M12-M36)
- >500,000 views on the project website (M6-M36)
- 5 scientific publications submitted (M1-M36)

Table 8 on the following page provides a summary of the objectives of the communication and dissemination strategy (presented in Section 2) with the links to the responses to possible barriers (presented in Section 8), stakeholder groups and target audiences. In addition, it provides a timeframe for the respective actions to be deployed.

Table 8. *Action Plan*

Objective	Link to responses to barriers	Stakeholder group / target audience	Action	Timeframe
Provide an integrated, solid, and uniform external image of the project, facilitating its widest possible reach, raising awareness about it, and attracting the relevant target groups.	Create a contact list building up on partners' existing networks; Involve key opinion leaders.	All	Share partners knowledge; Encourage them to promote the project newsletter, social media and website; Build an audience on social media; Advocate for the project in different events, meetings and conferences; Co-operate with sister EU projects.	M1-M36
Ensure the maximisation of the visibility of the project's actions, activities, and events.	Build on the partners' contacts, networks and dissemination capacities; Build interest using social media.	All	Disseminate information about Surrounded by Science objectives, activities, outputs and results via the website, social media and multimedia channels; Issue press releases on project landmarks.	M6-M36
Disseminate extensively the results of the project to target audiences using diverse channels, materials, tools, and activities	Clear communication on objectives, governance and deliverables.	All	Develop a communications guide to disseminate the outputs effectively and create a lasting impact.	M5-M36

customised to their context.				
Disseminate to a wide range of stakeholders the learnings and materials produced by the project.	Building on the partners' contacts, networks and dissemination capacities; Building interest using social media.	All	Disseminate the outputs and learnings effectively and in engaging, interesting way (using different formats).	M5-M36
Tap into partners' networks and build synergies and joint actions with sister EU projects in which partners are involved.	Use partners' links to key stakeholders Build upon communities of stakeholders that already part of the network	Policy makers; Scientific and research community; Formal and out-of-school science education providers.	Disseminate knowledge and best practices through the website; Share experiences and best practices at workshops and webinars.	M6-M36
Leverage partners' local, national, and international networks formed with formal, non-formal, and informal educational institutions	Provide a solid and common brand for the project facilitating its recognition; Clear guidelines are provided to the partners; Provide room for adapting the messages in the different consortium languages.	All	Share the logo and key messages with partners together with guidelines on how to use them; Create the communication guide to disseminate the outputs; Have regular calls with the communications team for alignment.	M6-M36

8 Potential risks or barriers and responses

As in every project, it is essential to identify possible risks or barriers related to communication and dissemination. In this section, the main risks or barriers along with effective responses are listed in Table 9.

Table 9. *Risks, barriers, and responses*

Risks/Barriers	**Responses**
Building and managing a contact list is hindered by compliance with GDPR.	- The connection between data management and the communication plan will be carefully studied and tightened to ensure smooth procedures in data management that allow for effective communication and dissemination activities.
Lack of interest or willingness of certain target audiences to engage with Surrounded by Science activities and/or use the Science Chaser and Science Booster apps.	- Leverage links and develop trustful relationships between partners and key audiences (i.e., science organisations, end users). - Build on and exploit partners' networks by offering them customized and attractive communication tools for those audiences. - Recognise and celebrate stakeholders' involvement in the Surrounded by Science activities by establishing award schemes, communicating success stories and good practices.
Lack of effective coordination and communication both within the consortium and with the project's stakeholders	- Clear, well-defined, and transparent communication of the tasks, and effective management of expectations. - Regular two-way feedback among the partners to create shared understanding and positive dynamics. - Intensive dialogue with project's stakeholders through targeted outreach and dissemination activities - Reliance on the CDT to align communication and dissemination activities amidst changing circumstances. - Regular and constructive dialogue with key external stakeholders.
Insufficient input from partners for communication and dissemination of the project's activities	- Proactive request of input from partners by using the communication and dissemination management tools (i.e., dissemination log, event planning form) - Detailed plans from partners about delivery dates and materials required for reporting purposes - Clear communication on objectives, governance, and deliverables related to communication and dissemination.
Branding and messages not coherently adopted across the consortium	- Clear guidelines on the use of the project's visual identity are shared with partners - Comms materials are shared in various formats and become accessible to all on Teams.

	- Comms materials give room for adaptation in local languages.
Dissemination events are cancelled or postponed due to COVID-19	- Alternative online communication is enhanced (e.g., interactive blog, video interviews) - Where possible events are moved online (e.g., extra webinars, online presentation to visitors, etc.)

9 Communication and dissemination management

As specified in the project proposal, the partner leading the WP7 work will be EA. As such EA will be responsible for the design and implementation of the communication and dissemination plan, the development of the visual identity and the communication tools, design and management of the website. EA will work closely with WP7 contributors (i.e., NUCLIO, LC). It will also provide support to all partners to create synergies and liaise activities with similar projects, organisations, and initiatives, as well as to establish contacts with key stakeholders outside the Surrounded by Science network. It is, therefore, expected that all partners, according of course to their effort allocation for WP7, will engage and support the various communications and dissemination activities in their countries and beyond. To ensure coordination and ensure that all relevant partners are kept updated and can contribute in a participatory and timely manner to WP7 activities, EA will set up a communication and dissemination taskforce. This is described in the following subsection.

9.1 Communication and dissemination taskforce

The main organisational structure set up to support the WP7 work is the Communication and Dissemination Taskforce (CDT). This will be led by EA and comprised of representatives from the rest of the partners comprising the Surrounded by Science consortium.

The CDT will be acting as an advisory board for:

- making recommendations on the optimal use of existing communication and disseminations tools
- identifying and suggesting new and complementary value-added channels and tools (e.g., podcasts) that could be included in the communication and dissemination toolkit of the project
- suggesting communication strategies, techniques, and tools for dealing with potential bottlenecks (e.g., low adoption of Science Chaser and Science Booster by users and science organisations respectively)
- assisting with the elaboration of the editorial plan by suggesting academic journals in which the research results of the project can be published
- providing contacts with national and international media to help promote press releases, articles, etc.
- contributing to the project's newsletter but also ensuring that Surrounded by Science key results and activities are included in their own offline and online newsletters.

The proposed composition of the CDT is shown in Table 10.

Table 10. *Surrounded by Science communication and dissemination taskforce*

EA	**NUCLIO**	**LC**	**UT**	**EPS**	**IDIS**	**WIS**	**NTNU**
Angelos Alexopoulos	Rosa Doran	Francesco Mureddu	Tessa Eysink	David Lee	Flora Di Martino	Sherman Rosenfeld	Sofia Papavlasopoulou

The CDT will have monthly meetings led by EA. Any party which is a member of the CDT is encouraged to appoint a proxy to attend if they are unavailable. EA reserves the right to call special meetings when needed.

9.2 Communication and dissemination management tools

Three main tools for the management of the communication and dissemination work of the project are foreseen as follows:

- Dissemination log
- Event planning form
- Key Performance Indicator (KPI) tracking log.

9.2.1 Dissemination log

The first of the management tools is the dissemination log. This is a simple Excel sheet which is available on the WP7 channel in Teams under the Dissemination Management folder. This Excel sheet has a separate tab for each partner. Partners are requested to make an entry under their own tab every time they carry out a dissemination action and to define this action according to the following criteria:

- Dissemination activity: what type of dissemination activity was this? (e.g., posting on a website, presentation at an event)
- Focus of dissemination: what were you disseminating about? (e.g., pilot implementation activity, project results, the project in general, etc.)
- When did the activity take place?
- Where did the activity take place? (If taking place in a specific place then add the location, otherwise online)
- Who was responsible for the activity?
- Web URL: online address if relevant
- Title: presentation or title of news story or announcement
- Description of the activity if required
- Language: In which language did the activity take place?
- Target: specific if relevant otherwise general
- Reach: how many people did this activity reach if known?
- Additional information if useful

At each of the face-to-face (or online) CDT meetings, partners will collectively review this Excel sheet to ensure enough effort is going into dissemination activities. This sheet is also a very useful tool for the coordinator to monitor the overall progress in respect to the dissemination activities carried out throughout the duration of the project. The link to the dissemination log is SbS_Dissemination_Log.xlsx.

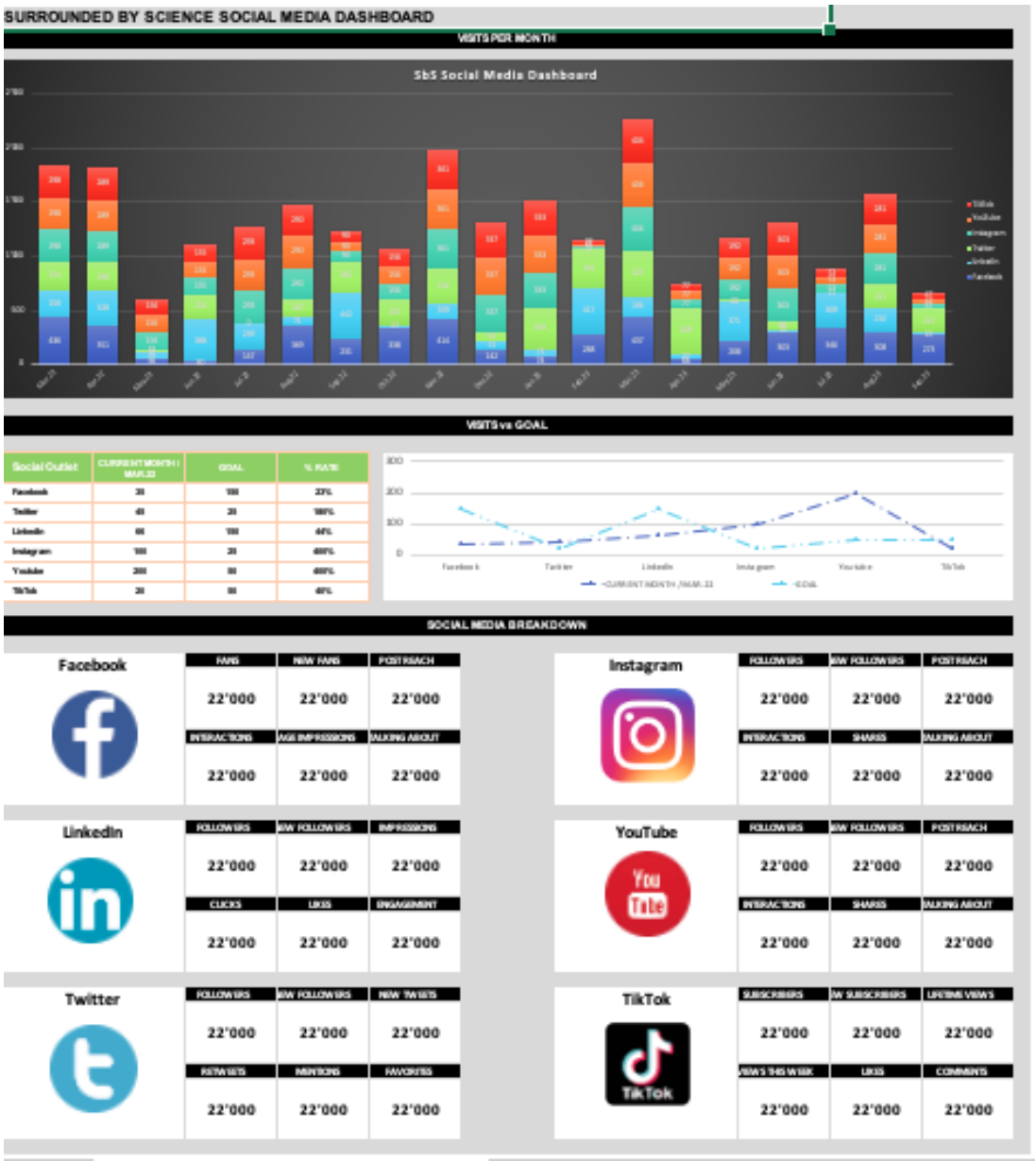
9.2.2 Event planning form

The second tool used for the support of the dissemination activities is the event planning form. This is again a simple Excel sheet where all partners insert upcoming relevant events, whether these are local, national, or international. It allows partners to see what plans each has in terms of participation and possible promotion of the project at relevant events. Like the dissemination form, it will be kept in Teams, and updated and discussed regularly at the CDT monthly meetings. Where possible it will also be used to discuss the type of intervention best suited to specific events and explore opportunities for the partners to collaborate both internally and with external stakeholders. The link to the event planning form is SbS_Event_Planning_Form.xlsx.

9.2.3 Key Performance Indicators (KPI) tracking log

The third tool used to facilitate communication and dissemination management and planning is the Key Performance Indicator (KPI) tracking log. This includes all the targets for communication and dissemination agreed within the partnership as specified in the project proposal, and which are presented in Section 10. The KPI tracking log will be designed in Excel by extracting data from Google Analytics, and the dissemination log, thus offering visual summaries of the monthly progress made in website traffic, social media engagement, dissemination events, etc. An example of the KPI tracking log in respect to monthly progress on social media engagement is shown in Figure 2. The KPI tracking log will be available and active in Teams in M6 when the communication tools will have been created.

Figure 2. *Example of KPI tracking logs for social media engagement*



10 Monitoring and evaluation

Monitoring and evaluating the success of the Surrounded by Science communication and dissemination effort will follow a pragmatic approach that, in turn, will rely on two factors: (a) the list of dissemination related performance indicators included in the project proposal; and (b) the success parameters that the partners themselves set according to the standards, aims, and expectations of their respective dissemination and communication strategies, some of which may be quantitative and other qualitative.

Concerning the performance indicators for the project as whole, the KPI Tracking Log as described in Section 9.2.3 has incorporated the dissemination related indicators specified in the project proposal and will thus be used by the WP7 leader and the project coordinator as a reference for the communication and dissemination progress assessment. Specifically, the following KPIs directly related to the communication and dissemination activities will be monitored to ensure that the project reaches its expected impact:

- 4 yearly webinars
- 4 yearly newsletters
- 3 videos, and infographics
- 2 yearly events presenting the state of advancement of the project
- 1 conference organised in the 3rd and final year of the project
- 5 papers submitted to peer-reviewed scientific journals by the end of the project[9]
- 20 dissemination events either conducted centrally by the Surrounded by Science consortium or participated by the project partners
- >500,000 views on the project website (considering the GDPR restrictions on the use of web analytics)

Complementary management tools to support the monitoring and evaluation process are the dissemination log, and the event planning form that have already been developed together with the KPI Tracking Log. Further, the action plan described in Section 7 will be used as an additional management tool for ensuring that the KPIs are fully met.

To ensure reaching the desired impact, all communication and dissemination channels, materials, and tools described in Section 6 will be applied and the potential of all consortium partners will be exploited.

All partners will have to report on a quarterly basis on their dissemination activities to EA. The dissemination log will be used as the template for reporting purposes. EA will also set up a system of reminders for the members of the consortium for the timely sharing of information on their dissemination activities. This is shown in Table 11. EA will also send a reminder every second month to partners for them to inform about upcoming events by filling out the event planning form. The CDT will also act as a scaffold to help the monitoring and evaluation process and will be reviewing the progress made at the monthly meetings.

[9] The time of the final publication could be later than the end of the project. Concerning open access to peer-reviewed scientific publications and deliverables, it is envisaged that 'gold' open access will be the preferred option, whereby the partners will publish in peer-reviewed scientific journals that, already, are committed to solely open access methods or that can foresee this option.

Table 11. *List of reminders*

Event report	Deadline: 14 days after the event
Early warning	7 days before the event
Reminder 1	7 days after the event
Reminder 2	10 days after the event

11 Conclusions

Aligned with the information provided in the Description of Action for Surrounded by Science, this document has presented the overall planning for the communication and dissemination efforts of the project. By providing a comprehensive overview of the strategy, key target groups, tools, and management of communication and dissemination, this deliverable sets the basis for the design and creation of the communication and dissemination materials that are scheduled to be launched in March 2022 and developed further over the course of the project.

This deliverable is and should be treated as a living document. Some of the sections in this document (e.g., social media accounts) may be updated throughout the lifetime of the project in order to adapt to the changing circumstances as the project evolves, undertake corrective actions if needed, and manage unforeseen risks and barriers in order to ensure that the key performance indicators will be successfully met.

12 List of appendices

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Appendix I

Inclusive communication

The hyperlinked documents presented below function as references for all partners when producing communication materials with the aim of assuring inclusiveness in the dissemination efforts of the Surrounded by Science project.

- **Inclusive communication module**

  You can download an interesting resource from UNICEF using this link.

- **Principles of inclusive communication**

  The 'Social Inclusion and Engagement in Mobility' EU project has produced a practical guideline on how to communicate inclusively with international youth for spoken, written, and visual communication. You can download the manual here.

- **Guidelines for using gender sensitive language in communication, research, and administration**

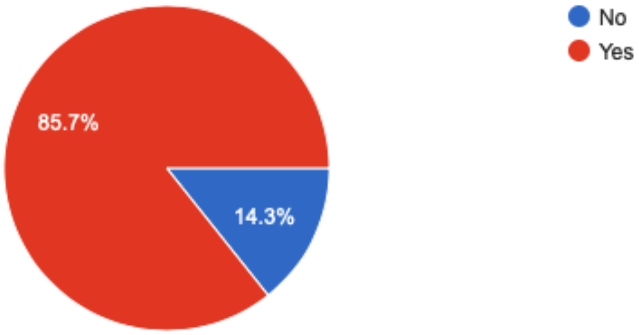
  Reutlingen University has produced a set of guidelines for using gender sensitive language. You can check them here.

Appendix II

Partners survey results

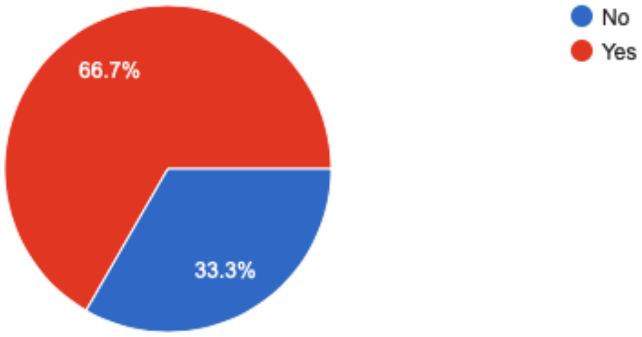
Does your website carry news articles?

7 responses



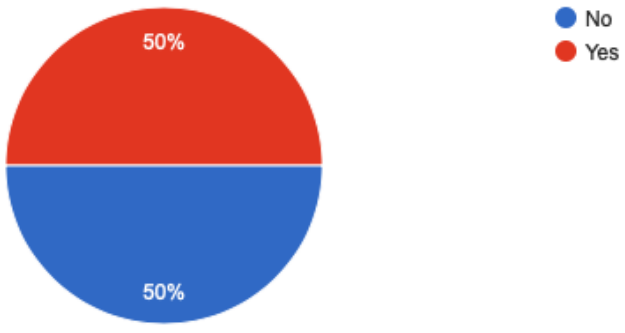
Do you track visitors to your website?

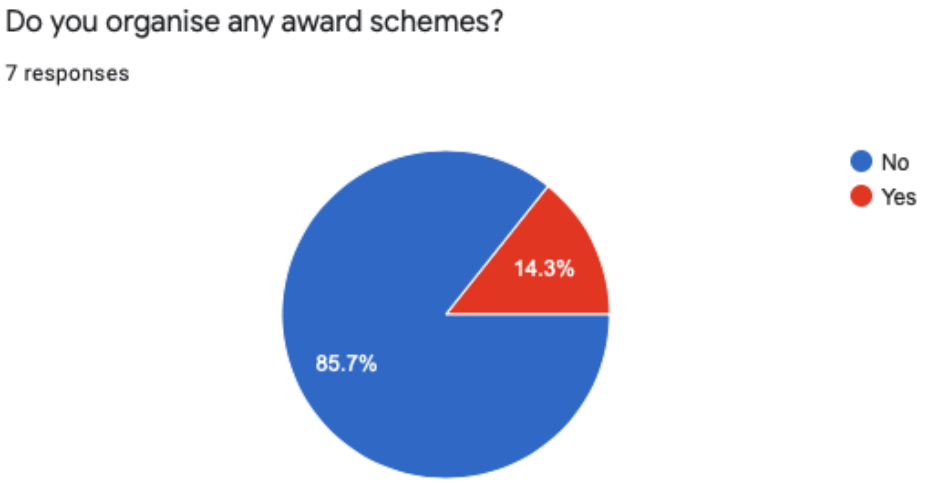
6 responses



Do you produce any newsletters or magazines (online or paper-based)?

6 responses





Conferences, seminars, workshops, exhibitions, fairs, etc. which partners organise or participate in.				
Organization	**Name of event**	**Average number of participants**	**Website**	**Target Audience**
IDIS	Futuro Remoto	The 2019 edition took place in the presence of the Città della Scienza spaces and saw the participation of about 15.000 visitors	2019 edition: http://www.cittadellascienza.it/notizie/futuro-remoto-2019-essere-4-0-dal-21-al-24-novembre/ 2020 edition: http://www.cittadellascienza.it/notizie/futuro-remoto-2020-pianeta/	Citizenship, Schools
	3GIORNIPERLASCUOLA	The 2019 edition of the event took place in attendance and counted about 8,000 formally registered participants.	http://www.cittadellascienza.it/3giorniperlascuola/ Past editions: http://www.cittadellascienza.it/3giorniperlascuola/edizione-passata/	Teachers, school heads, educators in general

		The 2020 edition of the event took place online with 19 remote meetings. 13.000 users signed up to participate although the average number of participants may have probably been slightly less than 685 (13.000/19) per meeting.		
	I seminari dell'INFN	The edition for the 2019/2020 school year included the holding of 13 seminars. Due to the sudden closure of Citta della Scienza due to the Covid emergency on March 13th 2020, only 9 seminars were held with an average of about 60 participants per seminar. In the edition for the school year 2020/2021, 5 online seminars were held with an average of about 75 participants per seminar.	http://www.cittadellascienza.it/notizie/i-seminari-di-fisica-edizione-2019-2020/	High school students and teachers
EPS	EGAS 52			
	ICPEAC			
	IUPAP			
	CMD2020 GEFES with 28th General Conference of the CMD			
	4th biannual conference of HoP			
	JEMS 2020	Online, 556 participants		
	World Conference In Physics Education			
	Out of equilibrium Physics in Biology			
	47th Annual Conference			
	EUROPHOTON 2020 NANOMETA 2020	540		

	Sigma-Phi Statistical Physics conference	200		
	Dynamics Days Digital	400		
	IPAC20	3026		
NUCLIO	Global Hands on Universe	100-200 (face to face events), 500-700 online events	https://handsonuniverse.org/	Educators and Science Educators
	Astronomy Education Adventure in the Canary Islands	40-50 (face-to-face), 300 online	http://galileoteachers.org/	Educators
	ESA-GTTP Training	20-30 (face-to-face), 200 online	http://galileoteachers.org/	Educators
	COSPAR - GTTP	20-30 (face-to-face), 200 online	http://galileoteachers.org/	Educators
	Professores do Século XXI	50-100 online	http://nuclio.org	Educators
NTNU	National conference for the use of ICT in learning and teaching (Conference in Norway for Norwegians mainly with the acronym "NKUL"	Not sure, but it can be 1000	https://www.nkul.no	Teachers and educators in the country also open to researchers and companies
	Science conference	No data are provided	https://www.ntnu.no/skolelab/realfagkonferansen	Teachers and educators in the country also open to researchers and companies
	Maker fair event in Trondheim	Open fair in the city	https://trondheim.makerfaire.com	Open to everyone
EA	Ecsite Annual Conference	~1,000	https://www.ecsite.eu	Science centres/museums; National history museums; research bodies; private companies; festivals; professional networks; other

				informal science engagement organisations
	European Science Innovation Academy Summer Schools	~160	https://esia.ea.gr	Teachers and school heads
	EDEN Open Classroom Conference	~180 physically ~500 virtually	https://www.eden-online.org/events/open-classroom-conferences/	Teachers, school heads, researchers, policy makers
	EDEN Annual Conference	~300	https://www.eden-online.org/events/annual-conferences/	Teachers, school heads, researchers, policy makers
	Association of Greek Physicists Annual Conference	~150	https://www.eef.gr/events_list.php?cat=23	Teachers and school heads
	Athens Science Festival	~20,000	https://www.athens-science-festival.gr	General public
UT	European Association for Research and Learning and Instruction	+/- 1500	www.earli.org	Researchers
	American Educational Research Association	> 15.000	www.aera.net/Events-Meetings/Annual-Meeting	Researchers
	European Association for Practitioner Research on Improving Learning	+/- 500	www.eapril.org	Researchers and educational practitioners
	National Science Teaching Association		www.nsta.org/conferences-and-events	Science teachers
	Twents Meesterschap		www.utwente.nl/nl/pro-u/aanbod/conferenties/twents-meesterschap/	Teachers
	Association for science teacher education		theaste.org/meetings/2022-international-conference/	Science teacher trainers

	Museum Network Conference		muscon.org	Museums
	Onderwijs Research Dagen		ord2021.nl	Researchers and teachers in The Netherlands and Flanders
	International Conference on Informal Learning		waset.org/informal-learning-conference	Researchers, practitioners, and educators
	International Conference on Informal Learning and Education		waset.org/informal-learning-and-education-conference-in-december-2021-in-auckland	Researchers, practitioners, and educators
LC	Data for Policy	100+	https://dataforpolicy.org/	Policy makers and practitioners
	EGOV-CeDEM-ePart 2022	200+	http://dgsociety.org/egov-2022	Academics and practitioners
	The European Group For Public Administration (EGPA) annual conference	600+	https://egpa.iias-iisa.org/EGPA ANNUAL CONFERENCES.php	Policy makers and practitioners
	European Association for Research on Services (RESER) annual conference	450+	https://reser.net/2021-heilbronn-reser-annual-conf/	Policy makers and practitioners

Other relevant projects, networks, initiatives in which partners are involved			
Organization	**Name of project, network, initiative**	**Indicate the reach of this project, network, initiative (e.g.: national; European; international)**	**Your role in this project, network, initiative Target Audience**
IDIS	ECSITE	European	Member
	ICOM International	International	Member
	GOSTEAM	European (Erasmus+ programme)	Partner
	R4C	European (Erasmus+ programme)	Partner
	ESERO Italy	National	Partner

	Playing with Protons	European (Erasmus+ programme)	Partner
	China-Italy Innovation Week	International	Co-organizer
	Sino-Italian Exchange Event	International	Co-organizer
EPS	International Year of Basic Sciences for Sustainable Development	International	Sponsor
	International Day of Light	International	Sponsor
UT	BE COOL!+	National	Researcher
LC	ETAPAS - Ethical Technology Adoption in Public Administration Services (H2020- DT-TRANSFORMATIONS-02-2020)	European	
	SPOTTED - Satellite oPen data fOr smarT ciTy sErvices Development (CEF-TC-2020-2)	European	
	DECIDO - eviDEnce and Cloud for more InformeD and effective pOlicies (H2020-DT-GOVERNANCE-12-2020)	European	
	ACROSS - Towards user journeys for the delivery of cross-border services ensuring data sovereignty (H2020-DT-GOVERNANCE-05-2020)	European	
	LETHE (λήθη) – A personalized prediction and intervention model for early detection and reduction of risk factors causing dementia, based on AI and distributed Machine Learning (H2020-SC1-DTH-2018-2020)	European	
NTNU	https://comnplayscience.eu	European project Horizon 2020	Partner/coordinator Project ended in November 2021

	http://learnml.eu/index.php	Erasmus+ European project	partner
EA	Virtual Pathways Erasmus+ project	European	Partner
	Playing with Protons Goes Digital Erasmus+ project	European	Partner
	Schools as Living Labs H2020 project	European	Coordinator
	Reinforce H2020 project	European	Partner
	ECSITE (European Network of Science Centres and Museums) Network	European	Member
	EDEN (European Distance and e-Learning Network)	European	Member
	STEDE (Science Teacher Education Development in Europe)	European	Member
	German Excellence Network of STEM Schools “MINTEC”	German	Member
	European Education Policy Network on Teachers and School Leaders	European	Member

European, national, regional and sector-specific channels that partners use for communication and dissemination purposes			
Organization	**Name of communication channel (newsletter, magazine, website, etc.) and, if possible, a link or reference to it**	**Target users (who it is aimed at?)**	**Any comments?**
IDIS	Newsletter to school	Teachers and school heads	
	Newsletter to families	Citizens (families in particular)	
	Website (www.cittadellascienza.it)	All interested stakeholders	
	Facebook: www.facebook.com/cittadellascienza	All interested stakeholders	
	Twitter: www.twitter.com/cittascienza	All interested stakeholders	
	Instagram: www.instagram.com/cittadellascienza	All interested stakeholders	
	Linkedin: https://www.linkedin.com/company/fondazione-idis-citt-della-scienza	All interested stakeholders	

	Youtube channel: https://www.youtube.com/c/fondazioneidis/videos	All interested stakeholders	
EPS	International Association of Physics Students	University physics students	Good network to discuss all aspects of physics
	All EPS Member	National communities in physics, including teachers	Here is link to the EPS Member Societies: https://www.eps.org/page/membership_ms
UT	Journals on science education (e.g., International Journal of Science Education)	Science	
	Journals on informal learning (e.g., Journal of Museum Education)	Science	
NUCLIO	ESIA newsletter	Educators	
	COSPAR magazine	Scientists	
	CAP journal	Scientists and educators	
	SCICOM - Portugal	Outreach promoters	
	EPSC (Europlanet Science Congress)	Scientists and outreach promoters	
	European Astronomical Society Conference	Scientists and outreach promoters	
NTNU	http://www.scientix.eu	The community for science education in Europe	Well established
	https://www.etwinning.net/en/pub/index.htm	The community for schools in Europe	Well established
	http://www.ingenious-science.eu/web/guest;jsessionid=728CDE7254FC9F4D0CE10839AAEB27C0		Never used it
	https://www.golabz.eu		Never used it
EA	Spokes – science engagement magazine	Science centres/museums; National history museums; research bodies; private companies; festivals; professional	Ideal outlet for promoting the project on a European level

		networks; other informal science engagement organisations	
LC	Joinup Platform	Civil servants and contractors	
	IESI mailing list	Academics in social innovation and digital government	
	EpsiPlatform	Civil servants and practitioners	
	Innovatori P.A.	Civil servants and practitioners	
	W3C eGovernment Group	Academics in social innovation and digital government	
	EU Open Data working group of the OKFN	Civil servants and practitioners	

Appendix III

Checklist of mandatory elements

The checklist of compulsory elements aims to remind all partners of the mandatory elements that must be present in their communication and dissemination activities and materials related to the Surrounded by Science project. The following elements must be included:

- **Acknowledgement phrase**: The Surrounded by Science project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement no. 101006349. This publication only reflects the author's view and the European Commission is not responsible for any use that may be made of the information it contains.
- **EU emblem**: Do not forget to include the related EU emblem in all of your communications.
- **Link to the website:** Please include the link to the website in all of your communications.
- **Link to social media:** As much as possible include the project’s social media accounts in your communication materials.

Appendix IV

Use of communication tools per target group

Target group	Scope	Key messages	Comms Materials	Website	E-Newsletter	Social media	Press releases	Project events	External events	Publications
Providers of out-of-school science education	To raise awareness and promote active collaboration in Surrounded by Science activities as case study and good practice To encourage the use of the Science Chaser app among their participants and provide information to users about their activities To use and apply the Science Booster app to improve their activities	Important science learning regularly happens out-of-school. Out-of-school science activities can be a booster to bridge the gender gap in scientific activities. The kind of learning without structure or organization that we all do on a daily basis without realizing it, in line with the current and future needs of the society, to be optimized, it must first be validated!	X	X	X	X	X	X	X	X
Formal science education providers	To encourage students in taking part in the Surrounded by Science activities and to incorporate results of the project in their everyday activity	Science is everywhere. Science learning is fun. Science is the way ahead. All can be creative in science.	X	X	X	X	X	X	X	X

	To inform them about the opportunities of out-of-school activities for formal education	We are surrounded by science every day and everywhere. Science is not an activity limited to school. Science is everything that happens around us. School science is only one aspect of how we learn science. When you watch, read, listen to or do something, you learn. Choose to learn science. You don't have to be a scientist to learn and understand science. You can learn science at any age and at any level.								
Broad public/citizens	To accomplish effective Parental Engagement and encourage an active role in their children's skills and competence development To raise awareness of the opportunities offered through the Science Chaser app To explain the goal of the project and encourage the participation during the visited out-of-school activities	We are surrounded by science every day and everywhere. You can also learn about science in your spare time. Science learning is fun. Science learning should be accessible for all. Bridging the gap between science and everyday life.	X	X	X	X		X	X	

		When you watch, read, listen to or do something, you learn. Choose to learn science. You don't have to be a scientist to learn and understand science. You can learn science at any age and at any level. Important science learning regularly happens out-of-school. The kind of learning without structure or organization that we all do on a daily basis without realizing it, in line with the current and future needs of the society, to be optimized, it must first be validated!								
Parents	To accomplish effective Parental Engagement and encourage an active role in their children's skills and competence development To raise awareness of the opportunities offered through the Science Chaser app To explain the goal of the project and encourage the	Science is not an activity limited to school. Science is everything that happens around us. School science is only one aspect of how we learn science. You don't have to be a scientist to learn and understand science.	×	×	×	×		×		

	participation during the visited out-of-school activities	You can learn science at any age and at any level. There are many settings outside the classroom that allow children to explore science in a meaningful and enjoyable way.								
Research and scientific community	To raise awareness and promote active collaboration in Surrounded by Science activities as case study and good practice To engage and to promote the concept that research community must find new approaches to bridge out-of-school activities with formal education To encourage the use of the Science Chaser app among their participants and provide information to users about their activities	Formal science (or STEAM education) is only one aspect of how we learn science. Certifying the skills acquired in the non-formal and informal fields means moving towards greater autonomy and awareness of the individual. The kind of learning without structure or organization that we all do on a daily basis without realizing it, in line with the current and future needs of the society, to be optimized, it must first be validated! There are many ecologies outside the classroom that allow children to explore STEAM in a meaningful and enjoyable way.		X	X			X	X	X

		A mix of activities originating from different ecologies together build science proficiency Science learning can happen anywhere and at any time. Every experience (inside or outside the classroom) can be a catalyst for learning. Calling these learning moments for discussion and consolidation is an ongoing effort in science education and science communication, bridging the gap between students' daily lives and formal science learning.								
European policy makers and public sector actors	To encourage their interest in and mainstreaming of good practices To showcase the opportunities for an accreditation to accredit activities or organisation with proven impact on science proficiency To take up the certification system developed in the project To share recommendations into educational policies	Learn the scientific culture and develop policy recommendations. Science learning can happen anywhere and at any time. Every experience (inside or outside the classroom) can be a catalyst for learning. Calling these learning moments for discussion and consolidation is an ongoing effort in science education and science communication, bridging the	X		X	X		X	X	X

		gap between students' daily lives and formal science learning. The world around us is rapidly changing. With it, the concept of education as well. It is important to create new frameworks and develop recommendations into educational policies on what educational activities are, updating the learning ecosystem. Out-of-school science activities can be a booster to bridge the gender gap in scientific activities. On a broader level, policy makers and institutional stakeholders have a say in designing more inclusive policies and programmes. Science is not an activity limited to school. Science is everything that happens around us. For this reason, we need to open a debate with policy makers and stress the importance of providing								

		challenging ideas and activities for the whole society. Certifying the skills acquired in the non-formal and informal fields means moving towards greater autonomy and awareness of the individual.								