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 7.3

Report on Communication and Dissemination Activities

Editor	Angelos Alexopoulos (EA)
Date	31 March 2022
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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Executive Summary

This report presents an in-depth critical overview of the communication and dissemination activities implemented in the first half of the Surrounded by Science's lifecycle. Based on data, metrics, key performance indicators, and benchmarks, the report provides guidance on concrete suggestions for an integrated approach to communication and dissemination by which the project can achieve the goals and objectives as they relate to the effective dissemination of the project's results and outcomes and prepare the ground for their continuous improvement and sustainability.

The results of this report indicate that significant progress has been made in terms of the number and quality of dissemination activities and their impact on raising awareness of Surrounded by Science's vision, goals, methodology, and potential for informing research, practice, and policy initiatives towards bridging the gap between formal and informal science learning. The evaluation results also show that the project has gained decent visibility in the digital space, with a digital communication footprint of 344k impressions over a 12-month period. However, further analysis indicates that this digital footprint has only partially been reflected on the project's website traffic, which presents a challenge that needs to be addressed from a strategic and management perspective.

At a strategic level, the report calls for further alignment between dissemination and communication activities by capitalising on the strong momentum from future dissemination events through concrete actions, such as targeted social media campaigns and media pitches. At a management level, the report suggests closer collaboration both with internal WP teams and external partners and stakeholders.

Overall, the report presents a positive, yet realistic, outlook, highlighting the potential for maximizing the impact and effectiveness of the project's communication and dissemination activities by further aligning and integrating its dissemination and communication efforts.

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1 Introduction

The purpose of this deliverable is to provide an account of the communication and dissemination activities in the Surrounded by Science project in its first 18 months. This deliverable is part of WP7 and is associated with T7.3 Communicating and Disseminating to Practice, Science, and Policy Activities.

The approach taken in this report comprises three steps: using well-established metrics to measure and evaluate the impact and effectiveness of communication and dissemination activities implemented during the first half of the project's lifecycle; identifying patterns and lessons learnt; and suggesting corrective actions to continuously improve dissemination and communication in the future towards meeting the KPIs.

1.1 Ambition

We know that science learning does not just happen in the classroom. In fact, individuals often learn about science through their hobbies, attending community events, visiting museums, science centres and zoos, or engaging in free-choice online learning.

Formal and informal science learning share many common goals. Informal science learning often emphasizes interest-driven learning and community connections, while classroom experiences are designed for extended investigations prescribed by curriculum specified learning objectives. Together, these different settings create an integrated and continuously evolving ecosystem for science learning that can enable individuals achieve their most ambitious learning goals through diverse and individualised science learning pathways that combine the best of the formal and informal science education worlds.

The overall ambition of Surrounded by Science is to create an evidence-based roadmap for the development of a hybrid science learning environment that integrates the power of out-of-school science learning experiences. The project recognizes the value of these informal learning experiences and seeks to harness their potential for building science proficiency, that is the development of specific competencies required to achieve goals and aspirations in science, understand the world around us, and be responsible citizens.

The project emphasizes the importance of connected learning that integrates the settings of school, home, and science community. By identifying shared goals, tools, and complementary educational opportunities, schools, research infrastructures, and informal science engagement organisations can work together to create interconnected learning experiences that support science proficiency and ultimately individual growth and development.

1.2 Towards an integrated communication and dissemination strategy

Effective communication and dissemination activities are crucial for realising the ambition of developing a hybrid science learning environment that integrates the contribution of out-of-school science learning experiences, what we conceptualise as iSTEM learning (D2.1), that is the outcome of the individual's engagement with activities in three learning contexts:

(1) scientific outreach programmes (e.g., research facilities, science clubs, citizen science projects, science fairs)

(2) designed environments (e.g., real-life and virtual visits to exhibitions, zoos, botanical gardens, museums and science centres)

(3) technology and media products (e.g., websites, social media platforms, simulations, games and apps).

With the right communication and dissemination strategy, the benefits of this project can be widely understood and adopted by the key stakeholders of an ever interconnected and hybrid science learning ecosystem. Resulting from dialogue and consultation with the Surrounded by Science consortium, especially the WP7 taskforce, and as specified in the Communication and Dissemination plan (D7.1), the key objectives of the Surrounded by Science communication and dissemination strategy are presented 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.

To begin with, communication activities can help raise awareness about the importance of informal science learning experiences. By highlighting the role that out-of-school activities, such as hobbies, community events, and museum visits, to name a few, play in science education, our communication and dissemination strategy aims to shift the conversation away from a narrow focus on classroom-only learning. Through engaging and informative messaging, it can help inspire individuals, especially young people, to learn about and seek out authentic, meaningful and diverse informal science learning opportunities and take advantage of the ecosystem of science learning contexts available to them by specifically encouraging the participation in the project's set of selected case studies (D2.3) and the use of the Science Chaser app (D3.3) and the Digital Toolbox overall (WP3).

In addition, effective communication strategies can help bridge the gap between formal and informal science education. By emphasizing the shared goals and objectives of these two approaches, our communication and dissemination strategy aims to help break down silos and foster collaboration between different learning settings. Clear and concise messaging that highlights the complementary nature of formal and informal science education can help school administrators, informal science engagement organisations, science education researchers, and policymakers work together to create a connected learning experience for individuals in the spirit of Surrounded by Science's motto "Science is Everywhere!". This motto puts emphasis on the crucial yet often overlooked role that informal activities play in shaping young people's science proficiency, such as their science identity and by extension their potential for developing responsible citizenship and the connection of this responsibility to STEM education.

Moreover, effective dissemination involves actively engaging relevant audiences. To achieve this, our team coordinates all information flows to ensure high-quality dissemination activities that are in line with our principles and reach the widest possible audience. Our strategy is to establish a continuous dialogue with target groups using innovative tools from our Digital Toolbox, a flagship innovation that will help assess the impact of Surrounded by Science's selected cases studies on

users' science proficiency. This approach ensures that information is delivered in the most appropriate format and is customized to be useful for the intended audience. Dissemination is crucial for effectively promoting exploitation activities, and it is closely related to communication and the protection of intellectual property rights. All partners are committed to mobilising stakeholders to maximise the impact of dissemination and exploitation activities. In D7.1 we have identified our key audiences and their specific interests early on to ensure the greatest impact. Our dissemination strategy is based on the ability of our key partners to inform policy agendas in the field of science education.

But how do the objectives of the communication and dissemination strategy translate into concrete activities and actions aimed at meeting the overall ambition of Surrounded by Science? Table 2 outlines the set of activities per communication and dissemination strategic objective.

Table 2. *Linking strategic objectives with dissemination and communication activities*

Strategic Objective	**Communication and Dissemination Activities per objective**
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.	• Create a communication and branding strategy that is consistent across all channels and materials. This can include developing a project logo, establishing a project website, creating social media profiles, and producing promotional materials such as brochures, videos, and infographics. • Engage with different stakeholders and audience groups to ensure that its messaging is tailored to their needs and interests.
Ensure the maximisation of the visibility of the project's actions, activities, and events.	• Create a calendar of events that includes both physical and online activities. • Work with relevant media outlets to promote the project's activities and events. • Leverage social media platforms to promote their activities and engage with followers.
Disseminate extensively the results of the project to target audiences using diverse channels, materials, tools, and activities customised to their context.	• Develop a range of dissemination materials that are customized to different audiences, such as activity providers, policymakers, educators, researchers, and the wider public. • Explore the use of infographics, animations, and interactive tools.
Disseminate to a wide range of stakeholders the learnings and materials produced.	• Create an open access repository that hosts all the project's materials and outputs. This can include academic papers, presentations, videos, and case studies. • Explore the use of alternative formats such as podcasts, webinars, or interactive tools.
Tap into partners' networks and build synergies and joint	• Collaborate with partners to identify potential synergies and areas of mutual interest.

actions with sister EU projects in which the partners are involved.	• Attend relevant conferences and events to meet potential partners and stakeholders. • Network and build relationships with other EU projects and identify opportunities for joint actions and knowledge sharing.
Leverage partners' local, national, and international networks formed with formal, non-formal, and informal educational institutions.	• Work with project partners to identify their existing networks and collaborations with formal, non-formal, and informal educational institutions. • Leverage these networks to promote the project's activities and outputs. This can include working with schools, museums, science centres, and community organizations to disseminate the project's findings and engage with different audiences.

It is pertinent to note that although the terms "communication" and "dissemination" are often used interchangeably, they possess distinctive features. In the framework of Surrounded by Science, and similar EU-funded projects, communication takes place at the project level, and it is directly linked to achieving the objectives, demonstrating project progress and European added value, showcasing project outcomes, and gauging the impact of the project on the lives of citizens by maximising the outreach potential of campaigns that utilise mainly digital (but not only) channels and platforms. Therefore, in the framework of Surrounded by Science, the primary target audiences of communication activities are both informal and informal science education providers, followed by parents and the broad public and citizens. Therefore, the messages and information provided should be presented by using engaging yet non-technical language. Conversely, dissemination occurs at the level of project results, and it is directly linked to spreading novel knowledge, findings, and methodologies to interested audiences, specifically, the research and scientific community, and EU policy makers and public sector actors. Consequently, the "language" employed in dissemination is recommended to be more technical and reflective of scientific excellence. Table 3 provides a summary of the communication and disseminations goals and key messages per target audience.

Table 3. *Communication and dissemination goals and key messages per target group*

Target Group	**Goals**	**Key Messages**
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.	- 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 daily without realizing it, in line with the current and future needs of society, to be optimized, must first be validated.

Formal science education providers	- To encourage teachers and students take in the Surrounded by Science activities and to incorporate results of the project in their everyday activities. - To inform them about the opportunities of out-of-school activities for formal education.	- Science is everywhere. - Science learning is fun. - Science is the way ahead. - Everyone can be creative in science. - We are surrounded by science every day and everywhere. - Science is not an activity limited to school. - Science can relate to 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.
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 participation during the visited out-of-school activities.	- Science is not an activity limited to school. - Science can relate to 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. - 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.

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 can help make science fun, accessible, and relevant. - 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 daily without realising it, in line with the current and future needs of society, to be optimized, must first be validated.
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 the 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.	- STEM 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 daily without realizing it, in line with the current and future needs of society, to be optimized, it must first be validated. - There are many contexts outside the classroom that allow children to explore STEM in a meaningful and enjoyable way. - A mix of activities originating from different contexts 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. - Science researchers and scientific institutions can play active roles in promoting science learning through such activities as public lectures, classroom visits, and outreach programs.
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 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.

Notwithstanding this distinction between “communication” and “dissemination”, the experience gained from executing these activities within the Surrounded by Science project over the reporting period indicates that digital platforms, including social media, blogs, and podcasts, provide both challenges and opportunities for both communication and dissemination. In recent years, there has been a merging of boundaries between science communication and dissemination channels,

particularly due to the advent of digital media. While traditionally perceived as separate, with communication focused on engaging the public and dissemination geared towards sharing scientific findings with the scientific community and other stakeholders, the emergence of digital platforms has resulted in a convergence of these channels. Consequently, it has become apparent that this overlap between science communication and dissemination channels mainly via digital media, especially social channels, offers considerable potential to amplify the overall impact of the project.

As will be explicated in the next section, the synergy between these channels can generate collaborative effects that are likely to enhance both communication and dissemination, leading to the accomplishment of the project's key performance indicators (KPIs). At the same time, this merging of boundaries between communication and dissemination represents a challenging equation and success hinges on multiple variables. Therefore, the WP7 team in close collaboration with the project coordinator and the rest of the WP leaders, have adopted a strategy that:

- Encourages bidirectional information flows between the project's WPs to ensure that information is widely shared and forwarded to the appropriate decision-makers in a timely manner.
- Allows room for experimentation, risk taking and learning from mistakes by conducting data-driven monitoring, tracking and evaluation and using findings to continuously improve the impact of communication and dissemination activities.

1.3 Meeting the key performance indicators

Surrounded by Science is arguably an ambitious research and innovation action, and this ambition is also reflected in clearly defined Key Performance Indicators (KPIs). The overall KPIs are shown in Table 4.

Table 4. *Surrounded by Science Key Performance Indicators (KPIs)*

Description	Target Value
1. Number of Exemplary Activities in Out-of-school Education (to populate the open project's inventory)	60
2. Number of Exemplary Activities in Out-of-school Education focusing on the involvement of users from rural and remote areas	6
3. Number of Stakeholders involved in the Scanning the Horizon Exercise	200
4. Number of Participants in the case studies (Research Sample – with balanced participation of male and female participants – minimum sample size)	10,000 (5,000 citizens and 5,000 students)
5. Downloads of the Science Chaser app	20,000

6. Average Use of the Chaser per user (months)	2
7. Geographical Coverage of the Research	At least in 6 countries (The Netherlands, Greece, Israel, Norway, Italy and Portugal, EPS activities will take place at European level)
8. Number of Scientific Publications	5 (submitted, the time of the final publication could later from the end of the project)
9. Number of Dissemination Events	20
10. Number of views on the project website (taking into account the GDPR restrictions on the use of web analytics)	>500,000

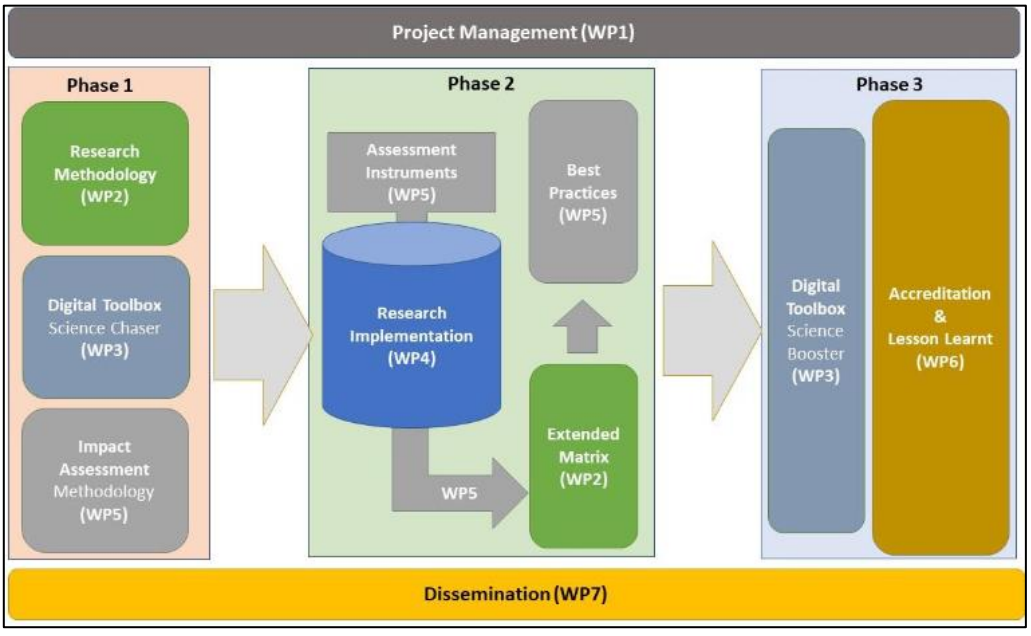
Cognisant of the key role that communication and dissemination plays in meeting the overall KPIs shown in Table 4, our strategic approach is by no means narrow. On the contrary, the communication and dissemination activities extend beyond KPIs 8 to 10 by partnering closely with the coordinator and the leaders across all WPs and providing them with the necessary scaffolds to help the project meet all KPIs. As far as the communication and dissemination activity is concerned, the project has established two types of measures to maximise impact:

1. Efficiently involve the target groups in the project endeavours with the goal of establishing a mutually beneficial exchange with scientific institutions, policy stakeholders, and the wider public, extending beyond the project's immediate community (communication).

2. Encourage the transparent public dissemination of Surrounded by Science's activities, tools, and outcomes to the target groups (dissemination).

As specified in D7.1 and D7.2, 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.*



For reference, it is important to note that the communication and dissemination activities reported in this document cover Phase 1 (completed) and Phase 2 (ongoing). According to the project's workplan as indicated in the Gantt Chart, T7.3 (Communicating and disseminating to practice, science, and policy activities) were set to begin in M7 (April 2022). Accordingly, the communication activities reported in this section cover the 12-month period between 01 April 2022 and 31 March 2023.

The remainder of this document is structured as follows:

- Section 2 offers a detailed account of the dissemination and communication activities implemented until 31 March 2023. Emphasis here is placed not only on describing those activities but also on evaluating their impact according to well-defined metrics and against benchmarks and indicators of project implementation from relevant documentation.
- Section 3 takes a step further by providing the results of analysis based on digital media metrics, such as Google Analytics, with the aim to identify trends and patterns, based on which concrete corrective actions are suggested towards improving the effectiveness of communication and dissemination efforts.
- In the 4th and final section, an overall summary of the progress made in the communication and dissemination front of the project, followed by suggestions and recommendations in order to address the needs and challenges identified through this report.

2 Communication and Dissemination Activities

This section provides a comprehensive overview of the communication and dissemination activities until 31 March 2023. In particular, the overview of dissemination activities covers the period between 01 October 2021 and 31 March 2023, while the overview of communication activities covers the period between 01 April 2022 and 31 March 2023. To this end, it is first important to define the metrics employed for monitoring and evaluating the progress made towards reaching the KPIs, particularly KPI-9 and KPI-10, as mentioned in Table 4.

2.1 Metrics

As indicated in KPI-9, the metric employed is rather straightforward, that is, the number of dissemination events either organised by the consortium or events in which the project partners have participated individually or collaboratively. Therefore, a baseline metric to be used as a reference point is the number of dissemination events during the reporting period.

As indicated in KPI-10, the project website is expected to have at least 500,000 page views by the end of its lifetime. While this is a clear metric that is easily trackable over time by reporting data from Google Analytics, in this report we employ a series of additional metrics concerning the digital social channels which are considered vital for helping to boost Surrounded by Science's digital footprint, including that of the project's website. Table 5 provides some of the key metrics per type of digital communication/dissemination channel.

Table 5. *Metrics per type of digital communication/dissemination channel*

Type of channel	**Metric**	**Metric definition**
Website(s)	1. Page views	Total number of pages viewed
	2. Users	Users who have initiated at least one session
	3. Sessions	The period time a user is actively engaged with the website
	4. Pages/Session	Average number of pages viewed during a session
	5. Average Session Duration	Average length of a session
	6. Bounce rate	% of single-page sessions in which there was no interaction with the page. A bounced session has a duration of 0 seconds
Social Media	*Awareness metrics*	
	1. Reach	Number of people who see the content
	2. Impressions	Number of times people saw the content

	3. Audience growth rate	% of new followers within a certain period
	Engagement metrics	
	1. Engagement rate	Number of reactions as a % of the audience
	2. Amplification rate	Ratio of shares per post to the numbers of followers
Podcasts	1. Listeners	Number of unique users who started an episode
	2. Starts	Number of plays that lasted 0 seconds or more
	3. Streams	Number of plays that lasted at least 60 seconds
	4. Followers	Number of users who clicked “follow” on a podcast in the catalogue.
Email Campaigns	*Awareness metrics*	
	1. Subscribers growth rate	% of new subscribers within a certain period
	Engagement metrics	
	1. Opens	% how many successfully delivered campaigns were opened by subscribers
	2. Clicks	% of how many successfully delivered campaigns registered at least one click

In addition to these metrics, data on geographical coverage of communication/dissemination activities as well as users’ basic demographic and geographical data (i.e., gender, age, location), where available, may provide additional insights.

Moreover, a series of patterns can also be identified with the aim to monitor and evaluate the relative effectiveness of specific campaigns, especially those that employ a combination of communication/dissemination channels. For example, an obvious pattern to be observed concerns the extent and type of effect that a social media campaign may have on website metrics, such as page views, bounce rate, etc.

2.2 Dissemination activities

2.2.1 Dissemination events: Overview

According to T7.3, dissemination activities include, but may be not limited to, presentations at conferences, presence in out-of-school science activities and contests, information days, workshops, thematic meetings with external experts, presentations in conferences and

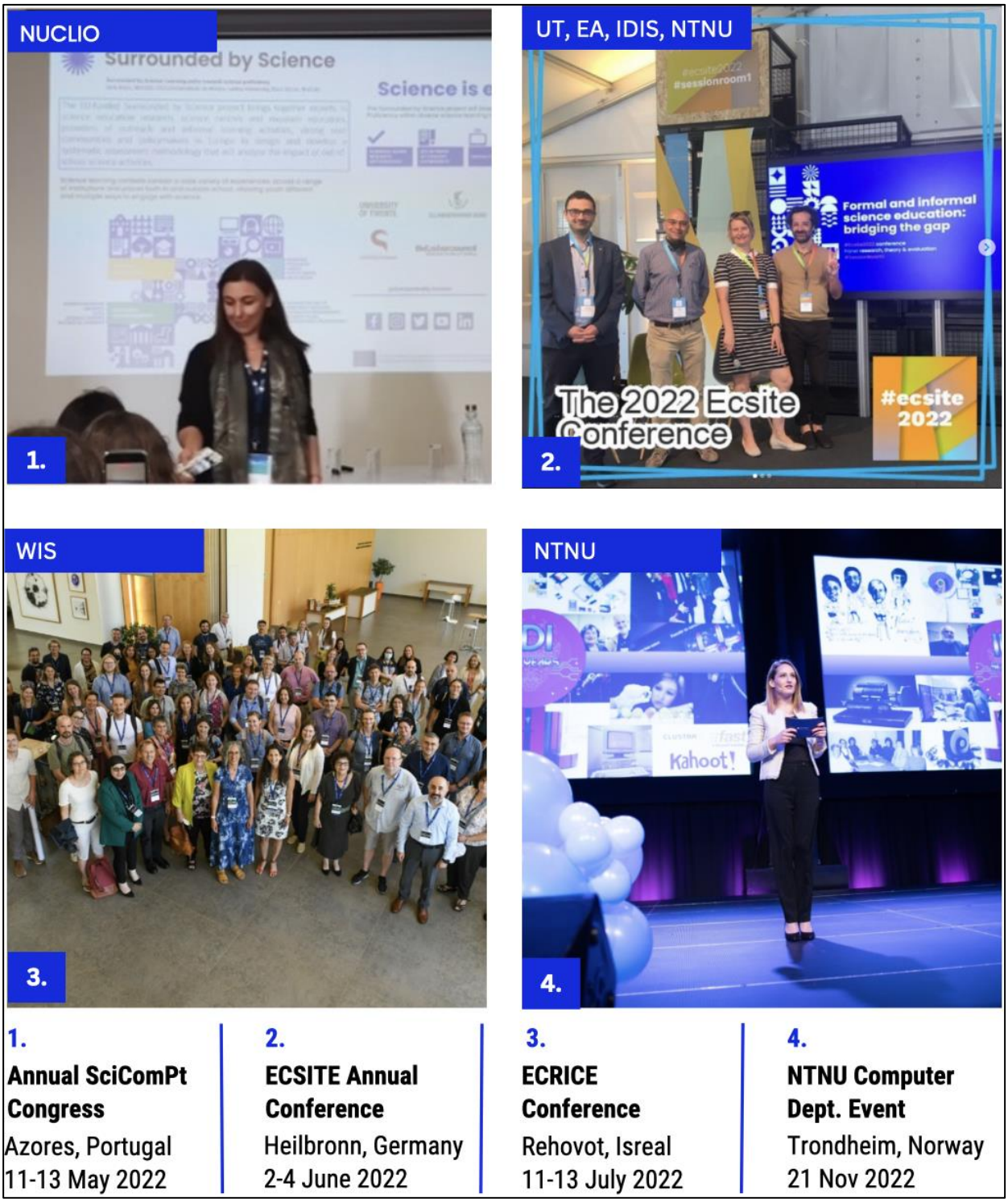
publications in peer reviewed and general public journals but also media outlets such as newspapers, magazines, radio stations, broadcast television, the Internet and the like.

A summary of the dissemination events for the period up to 31 March 2023 is shown in Figure 2.

Figure 2. *Graphical summary of dissemination events in the first 18 months of the project*

As shown in Figure 2, almost two-thirds of the dissemination events as indicated in KPI-9 have been implemented throughout the first half of the project's life cycle. Figure 3 illustrates some of the dissemination events that were performed in 2022.

Figure 3. *Selected dissemination events from 2022*



While the full list of dissemination events as reported by the project partners is available in Appendix 1, in this section we provide a more detailed overview of two events that are considered good examples of dissemination in the framework of the project: 1. Ecsite 2022 Annual Conference; 2. EPS 2022 Citizen Science Competition.

2.2.2 Dissemination event: Ecsite 2022 Annual Conference

The 2022 Ecsite conference returned to a face-to-face format and was held from June 2nd to June 4th in Heilbronn, Germany. The Experimenta Science Centre hosted this unique professional development opportunity that brought together nearly 1,000 participants, re-establishing itself as the largest European science engagement conference for professionals to meet and network.

Figure 4. *"Highly Attended Session" badge*

Surrounded by Science was present at the conference and had a highly attended panel session titled "Formal and informal science education: bridging the gap"[1] on the morning of June 3rd. The panel was convened by Dr. Angelos Alexopoulos (Ellinogermaniki Agogi) and featured Dr. Hannie Gijlers (University of Twente), Dr. Luigi Cerri (Città della Scienza), and Prof. Michail Giannakos (Norwegian University of Science Technology). The session engaged a knowledgeable audience of science engagement researchers and professionals on evidence-based dialogue to reflect on the importance of science proficiency and learning pathways that can inform their organizations to be more aware of their potential for contributing to a flexible and inclusive learning environment, making science more equitable, accessible, and impactful for society.

Dr. Gijlers delivered an interactive talk that helped the audience identify the six key strands of science proficiency and rate their relative importance according to their organizations' strategic priorities and goals. Dr. Cerri presented Città della Scienza's Insetti&Co exhibition as an example of an out-of-school activity that can be assessed and enhanced through the use of the Science Chaser, the web app that Surrounded by Science released in autumn 2022. The ultimate aim is to help informal science learning providers assess science proficiency. Prof. Giannakos introduced the audience to the latest ICT developments in science learning stemming from the recently completed EU project COMnPLAY SCIENCE and related research on the role of analytics and data utilization for science learning.

The Q&A session that followed brought out many interesting questions that the speakers thoroughly answered. One participant asked the panel how much effort and expertise is required from children, parents, and teachers to make the most out of the Science Chaser, and the

[1] https://www.ecsite.eu/activities-and-services/ecsite-events/conferences/sessions/formal-and-informal-science-education

response was that the Science Chaser is a light and user-friendly app that anyone can benefit from securely without special ICT skills.

After 20 minutes of lively discussion and questions, the session ended with warm applause for the panel. Based on audience's evaluation, the quality of the session's quality were rated with 4.38 out of 5.

The Surrounded by Science team will return to this year's Ecsite conference in Malta, this time with a fully-fledged Digital Toolbox designed and tested to help science engagement organizations realise their full potential for boosting their audiences' proficiency in science.

2.2.3 Dissemination event: EPS 2022 Citizen Science Competition

The EPS organized the EPS Citizen Science Competition[2] which was launched on September 1st, 2022, with a collaboration of Surrounded by Science, the Frontiers and Reinforce EU projects and which was supported by EA. The competition invited science enthusiasts to collaborate with researchers in the fields of High Energy Physics and Gravitational Wave Astronomy on a project to optimize detectors in these fields in order to make ground-breaking new discoveries. The winners of the competition received four travel grants to visit two of the most renowned research facilities in Europe: CERN, in Geneva (Switzerland) and EGO-Virgo, in Pisa (Italy). As such, during the whole month of September 2022, science enthusiasts joined the competition and participated in two different citizen science projects. They made classifications using real data from CERN and EGO-Virgo facilities in the fields of High Energy Physics and Gravitational Wave Astronomy, respectively. These challenges were conducted through the Zooniverse platform, the world's largest and most popular platform for citizen science projects, that support real researchers to make ground-breaking new discoveries.

Figure 5. *Promotional poster of the EPS 2022 Citizen Science Competition*

The EPS Citizen Science Competition was disseminated to a wide network covering different levels from regional, national to international. The dissemination plan included targeted emails inside the Reinforce EU project, EPS and the Surrounded by Science networks, a paid campaign on the EPS Facebook's account targeting young adults in the EU, systematic posts on the EPS blog, E-EPS newsletter, Twitter and LinkedIn accounts, blog posts and articles. As a result, over 370 science enthusiasts registered at the competition while the dissemination activities via de Reinforce website reached a total of 4,200 views. The awardees were selected after a rigorous analysis of the number and quality of the classifications they conducted and the motivation letters expressing their genuine interest to visit CERN and EGO-Virgo. Two winners of the EPS Citizen Science Competition benefitted from the travel grants and visited, in March 2023 one of the most

[2] https://www.eps.org/blogpost/751263/478017/EPS-Citizen-Science-Competition-2022-Take-part-now

renowned research facilities in Europe: the European Gravitational Observatory (EGO-Virgo), in Pisa, Italy.

2.2.4 Press releases and articles in media outlets

Press releases and articles in the press are crucial for promoting a research project, such as Surrounded by Science, as they help to increase the project's visibility and reach a wider audience. They allow the research team to communicate their findings, achievements, and impact to the public, policymakers, and potential collaborators. Furthermore, media coverage can enhance the project's credibility and reputation, attracting more funding and support for future research endeavours. First, and as expected, the project is featured in CORDIS[3]. Press releases concerning the promotion of specific activities, such as the recently launched podcast series, were also performed, and communicated to the project's subscribers via dedicated email campaigns. Two email campaigns announcing the podcast series were performed on 23 January and 17 March 2023 concerning the two podcasts that hosted social communicators with significant digital footprint through their YouTube channels and social media platforms. The first episode featured Javier Santaolalla[4] who is the most known science communicator of the Spanish-speaking world. The second episode featured Stamos Archontis (aka The Mad Scientist)[5], a chemist and science communicator that has a strong audience in the student and teacher community in Greece.

Figure 6. *Opinion piece in Kathimerini newspaper (English translated version)*


POLICY ECONOMY SOCIETY WORLD CIVILIZATION SPORT LIFE views MULTIMEDIA INVESTIGATIONS PUBLICATIONS conferences

SOCIETY

Four scenarios for the schools of the future and the perspectives for the educational system

The opinion that the implementation of educational policies is very difficult to impossible to evaluate in time seems to be widespread in Greek society

Photo INTIMATE

Angelos Alexopoulos*

30.11.2022 • 18:56

Surrounded by Science was also mentioned in an opinion piece by WP7 leader, Dr. Angelos Alexopoulos, that was featured in the electronic edition of *Kathimerini,* one of the most respected and influential newspapers in Greece that has a reputation for providing high-quality journalism and balanced reporting. In addition to its daily print edition, Kathimerini also has a strong online presence, with a website that provides news and analysis in both Greek and English. The paper has won numerous awards for its journalism over the years, and it continues to be a major player in the Greek media landscape. Building on OECD's "Back to the Future of Schooling" 2020 report[6], the opinion piece (originally written in Greek) entitled "Four scenarios for the schools of the future and the perspectives for the educational system"[7] was published on 30 November 2022. The piece made explicit reference to Surrounded by Science as a good example of a European research project exploring the potential of new technologies to monitor and enhance personalized informal science learning pathways and their interrelationships with formal schooling.

[3] https://cordis.europa.eu/project/id/101006349
[4] https://surroundedby.science/2023/01/20/podcast-in-the-universe-of-javier-santaolalla/
[5] https://surroundedby.science/2023/03/02/podcast-the-mad-scientist/
[6] https://www.oecd-ilibrary.org/education/back-to-the-future-s-of-education_178ef527-en
[7] https://www.kathimerini.gr/society/562162930/tessera-senaria-gia-ta-scholeia-toy-mellontos-kai-oi-prooptikes-gia-to-ekpaideytiko-systima/

2.2.5 Liaison and networking activities

Liaison and networking activities play a critical role in supporting the dissemination of international research and innovation actions, such as the Surrounded by Science project. These activities involve building relationships and collaborations with a range of stakeholders, including researchers, policymakers, practitioners, EU projects, and other relevant groups. Through these relationships, the Surrounded by Science consortium can gain access to resources, knowledge, and expertise, and build support for their work, which can ultimately help to enhance the visibility and impact of their outcomes. One key role of liaison and networking activities is to facilitate the dissemination of research findings to a wider audience. By building relationships with stakeholders, the project can identify and engage with key audiences, including those who may not typically be reached through traditional academic channels. Targeted communication and engagement strategies, such as social media campaigns or stakeholder events, can help to ensure that research findings are accessible and relevant to a range of audiences, and that the project has the potential to make a meaningful impact beyond academia. In addition to supporting dissemination, liaison and networking activities can also help to enhance the sustainability of the project. Building strong and collaborative relationships with stakeholders can create opportunities for ongoing dialogue and knowledge exchange, which can help to ensure that the outcomes of Surrounded by Science remain relevant and impactful over the long term. This may include working with stakeholders to identify and address emerging challenges, or to develop new applications and approaches based on research findings.

As documented in D7.2 (Section 4.1), the WP7 team had conducted desk research as well as an internal survey to collect information from the project partners on relevant EU-funded projects under the SWafS Programme, and networks, associations, and communities of interest in the field of formal and informal science education, with the aim to establish links and build relationships. Since then, a series of liaison and networking activities have been implemented, resulting in the creation of partnerships and collaborations, which have been proved profitable in terms of dissemination, visibility, and relevance.

Among the EU-funded projects from the immediate circle of the SWafS Programme, Surrounded by Science established in Autumn/Winter 2022 a collaboration with its sister research and innovation action, OTTER[8]. The first online meeting between the Communication and Dissemination teams took place in November 2022 (see Figure 7) with the aim to get to know each other and share ideas on joint communication and outreach activities in the future. This was followed by a second online meeting on 5 December 2022 during which both teams identified common areas of collaboration in the communication, dissemination, and exploitation of both projects' activities. Specifically:

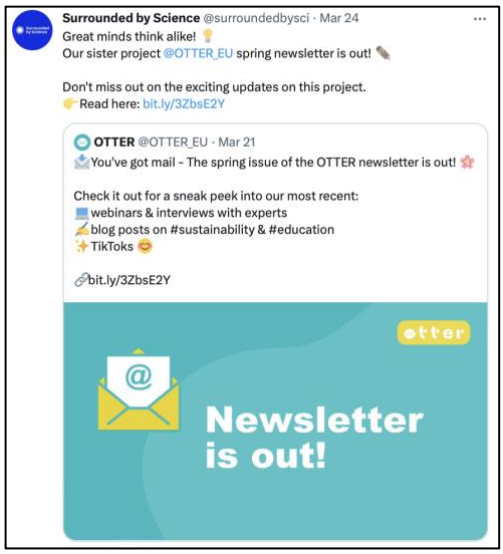
- Communication: social media collabs, guest blogposts
- Dissemination: webinars, workshops, colloquiums
- Exploitation: academic and non-academic publications

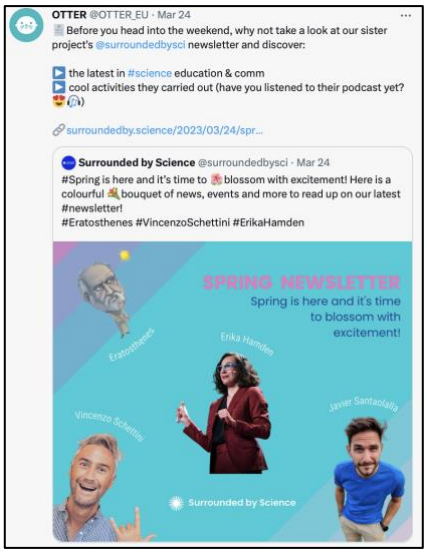
[8] https://otter-project.eu

Figure 7. *Screenshot of the online meeting between the Surrounded by Science and OTTER communication and dissemination teams in November 2022*

Since then, the collaboration has advanced mainly in the form of communication-related synergies, including social media collabs and guest blogposts[9,10]. A recent example of a social media synergy on Twitter can be seen in Figure 8.

Figure 8. *Twitter synergy between OTTER and Surrounded by Science*





Additional partnerships have been established with EU-funded projects in the field of open schooling. Among those projects, the closest link has been created with the SALL project[11], which is coordinated by EA, and by extension with associated projects such as Make it Open, OSHub, CONNECT, and MOST.

More recently, further collaborations are underway with newly funded EU projects, including Road-STEAMer[12], the overall aim of which is to develop a STEAM roadmap for science education in Horizon Europe. Another project that is relevant to Surrounded by Science, especially in terms of exploitation and dissemination, is the STEAM Learning Ecologies. This project will develop engaging open schooling-enabled science learning paths for all in learning continuums of formal and informal learning environments and enterprises by emphasising inclusiveness.

[9] https://otter-project.eu/news/13/otter-meets-surrounded-by-science
[10] https://surroundedby.science/2022/12/06/a-collaboration-is-born/
[11] https://www.schoolsaslivinglabs.eu
[12] https://www.road-steamer.eu

Turning to liaison and networking activities with associations, networks, and communities of interest, Surrounded by Science has made progress in raising its presence in the ECSITE network by succeeding to participating in two consecutive annual conferences (2022 and 2023) but also by joining ECSITE recently revamped Research and Evaluation (REV) Group.

Another strong connection has been established with the European School Innovation Academy (ESIA)[13]. ESIA acts as an information hub to support and promote EU educational policies with regard to school education, teacher training, school curricula development, assessment of learning outcomes, offering international training activities and providing guidelines, support and qualifications for training providers to design the most effective PD programs for teachers. Through ESIA, the project has gained access to science teachers and educators, one of its key target audiences.

Key partners in advancing liaison and networking activities have so far been EA, NUCLIO, LC, and EPS. Significant contributions have also been made by WIS through their close connections with the Association of Science and Technology Centres (ASTC) in the US. UT has also been very active in enhancing the collaboration with ECSITE's REV Group as well as in representing the project in major international conferences such as the PCST conference.

2.3 Communication activities

Communication activities in the framework of Surrounded by Science are divided between two types: internal communication and external communication. Both types employ primarily the use of digital tools. In this report, we focus on external communication activities.

Digital communication activities refer to the use of digital tools and technologies to communicate with external audiences, as defined in Section 1 (see Table 3). The main digital tools for external communication activities include:

- Website content management systems. These enable the creation and management of the project's websites.
- Social media platforms. These allow the project to engage with its target audiences, build brand awareness, and drive traffic to its websites.
- Email marketing software. This enables the project to create email campaigns by sending targeted and personalized messages to their email subscribers, promoting its activities and outcomes.

The advantages of these digital tools for external communication activities include:

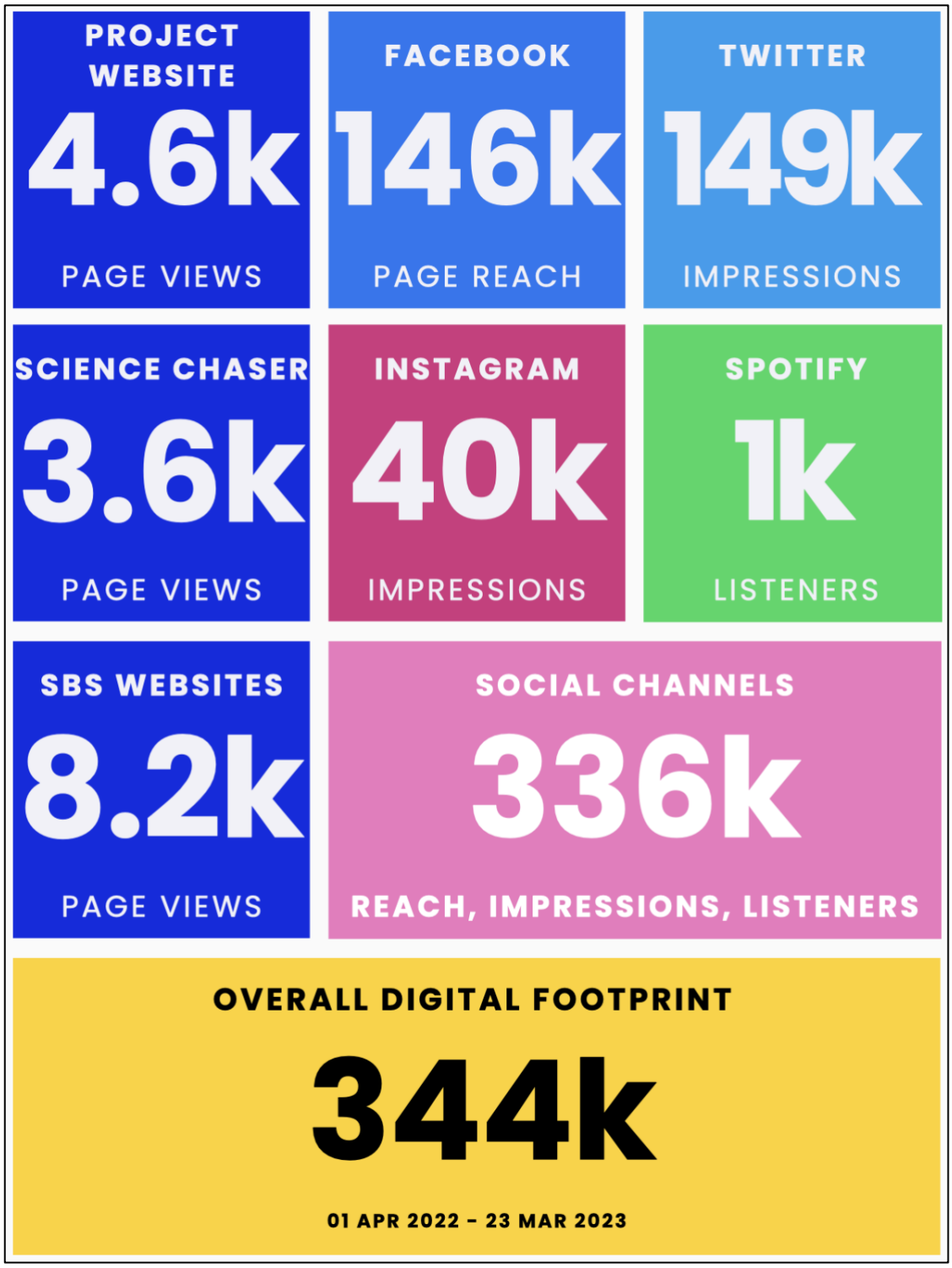
- Increased reach and visibility. Digital tools allow the project to reach a wider audience than traditional communication methods, potentially leading to increased brand recognition and the overall digital footprint of the project.
- Improved targeting. Digital tools allow the project to target specific audiences with their messaging, increasing the likelihood of engagement and conversion.
- Cost-effectiveness. Compared to traditional advertising and marketing methods, digital communication activities can be relatively affordable, making them accessible to businesses of all sizes.

[13] https://esia.ea.gr

- Measurability. Digital tools provide the project with data and analytics on its communication activities, allowing tracking the success of campaigns and make data-driven decisions.

A visual summary of the digital footprint of the project's communication activities is shown in Figure 9.

Figure 9. *Breakdown of digital footprint by type of digital communication channel (01 Apr 2022 – 23 Mar 2023)*



2.3.1 Websites

The Surrounded by Science has in place two web-based interfaces: (1) the project website, and (2) the Science Chaser web-based app.

The project website is considered the central component that anchors external online communication actions and serves as the focus point for stakeholder engagement and interaction. It aims to:

- Provide 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.).
- Gather, manage, and present 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.
- Host the project's outputs and deliverables.
- Link and integrate social media tools.

The Science Chaser is the web-based interface that can be utilised by informal STEM activity users in two distinct ways: first, by visitors, and second, by researchers and activity providers. It can be used by visitors who participate in out-of-school science learning activities, including visits to science centres or science museums. Visitors can use the tool to interact during their visit or during their engagement with a particular activity. The interaction may involve answering brief questions or scanning QR codes, enabling them to interact with the activity and obtain additional information. Moreover, visitors can use the Science Chaser after their visit to the science engagement organization to report their post-visit activities.

2.3.1.1 Project website: design, structure and content

The design and development of the project website[14] aspires for a modern, freshly branded website with a colourful design that is consistent with the overall visual identity of the project. A creative landing page that conveys to the visitors the key message of the project, 'Science is everywhere!' accompanied by a short description of the project, acts as an informative teaser that visitors can start exploring on-scroll the project's news and events, be invited to sign up to the project's newsletter and have instant access to the project's social channels.

The website is hosted on a server provided by the UT. In terms of Content Management Platform, the website uses a responsive, dynamic, and adaptable CMS to desktop, tablets, and mobile devices. It also follows guidelines for SEO success including the use of selected Google Search APIs such as the Google Site Verification API. All these tasks are performed by the web development team of EA. In terms of its management, tasks are distributed amongst EA, NUCLIO, LC and EPS, members of which comprise the WP7 core team.

Launched in April 2023 (M7), the website is structured into six main sections shown in Table 6. In addition, the website offers a "Search" button allowing users to find specific content or information quickly and easily, improving the website's usability and user experience.

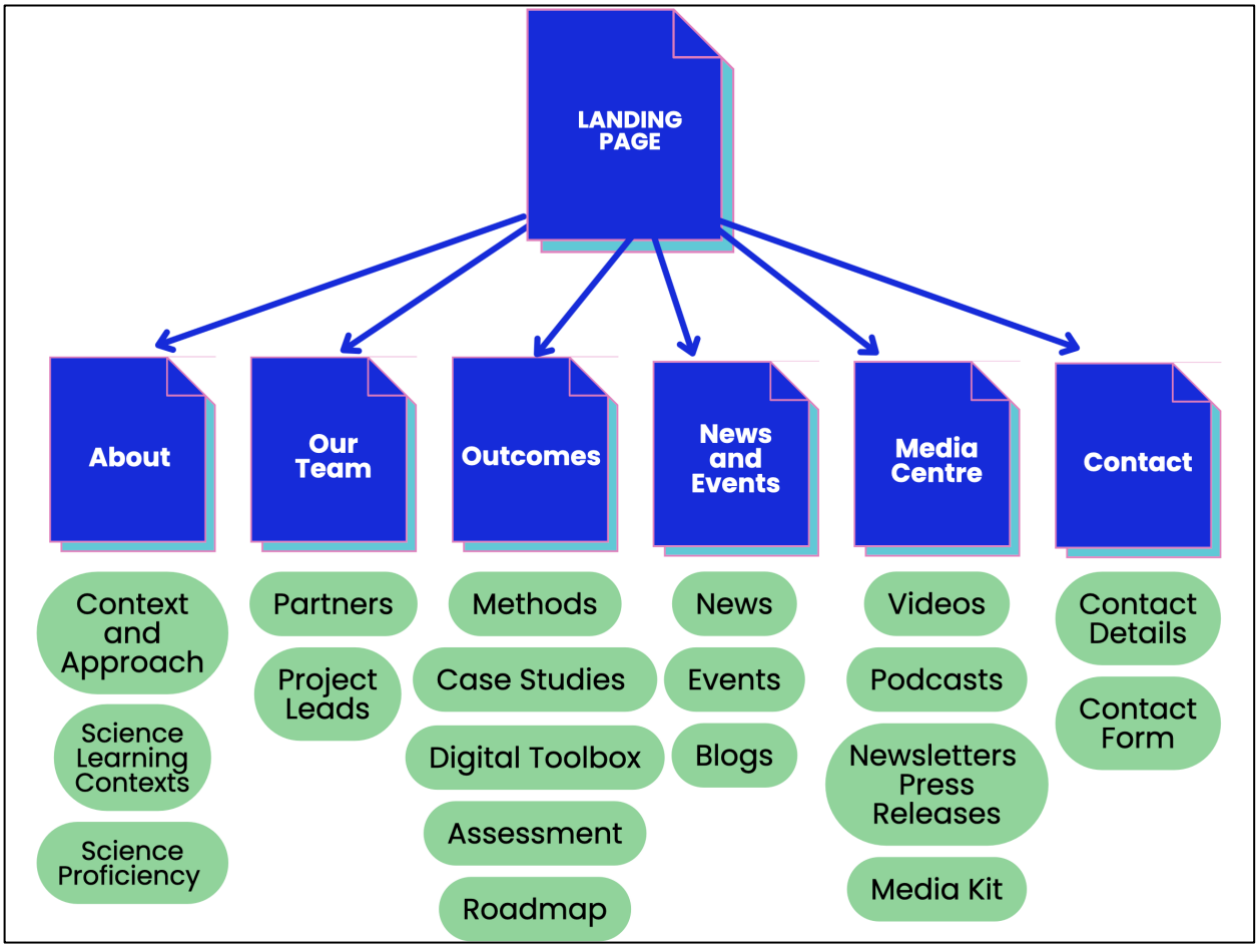
Table 6. *Main structure of project website*

1. About	2. Our Team	3. Outcomes
4. News and Events	5. Media Centre	6. Contact

[14] www.surroundedby.science

Figure 10 illustrates the diagrammatic structure of the website by mentioning the main content areas presented per section.

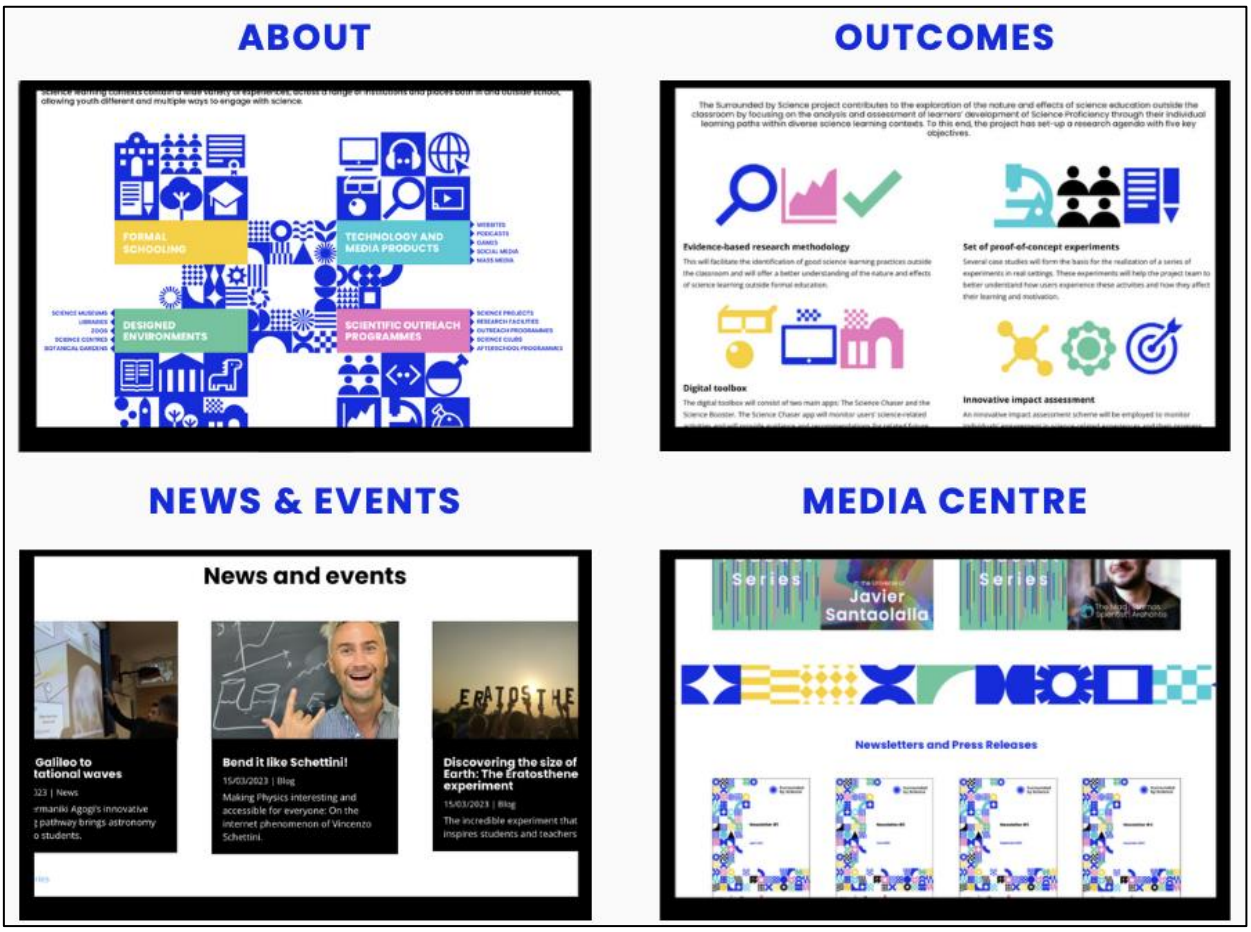
Figure 10. *Diagrammatic structure of project website*



Figures 11a and 11b show snapshots of the project website's landing page and snapshots of selected sections respectively.

Figure 11a. *Snapshot of project website's landing page.*

Figure 11b. *Snapshots of project website's selected sections.*



In terms of content published on the website, the WP7 editorial team has so far (i.e., up to 23 March 2023) created 23 posts found in the News & Events section. This content is structured into 3 main categories: (1) news and events, (2) blogs, and (3) newsletters. The distribution of posts per category is as follows: news and events (30%), blogs (57%), newsletters (13%).

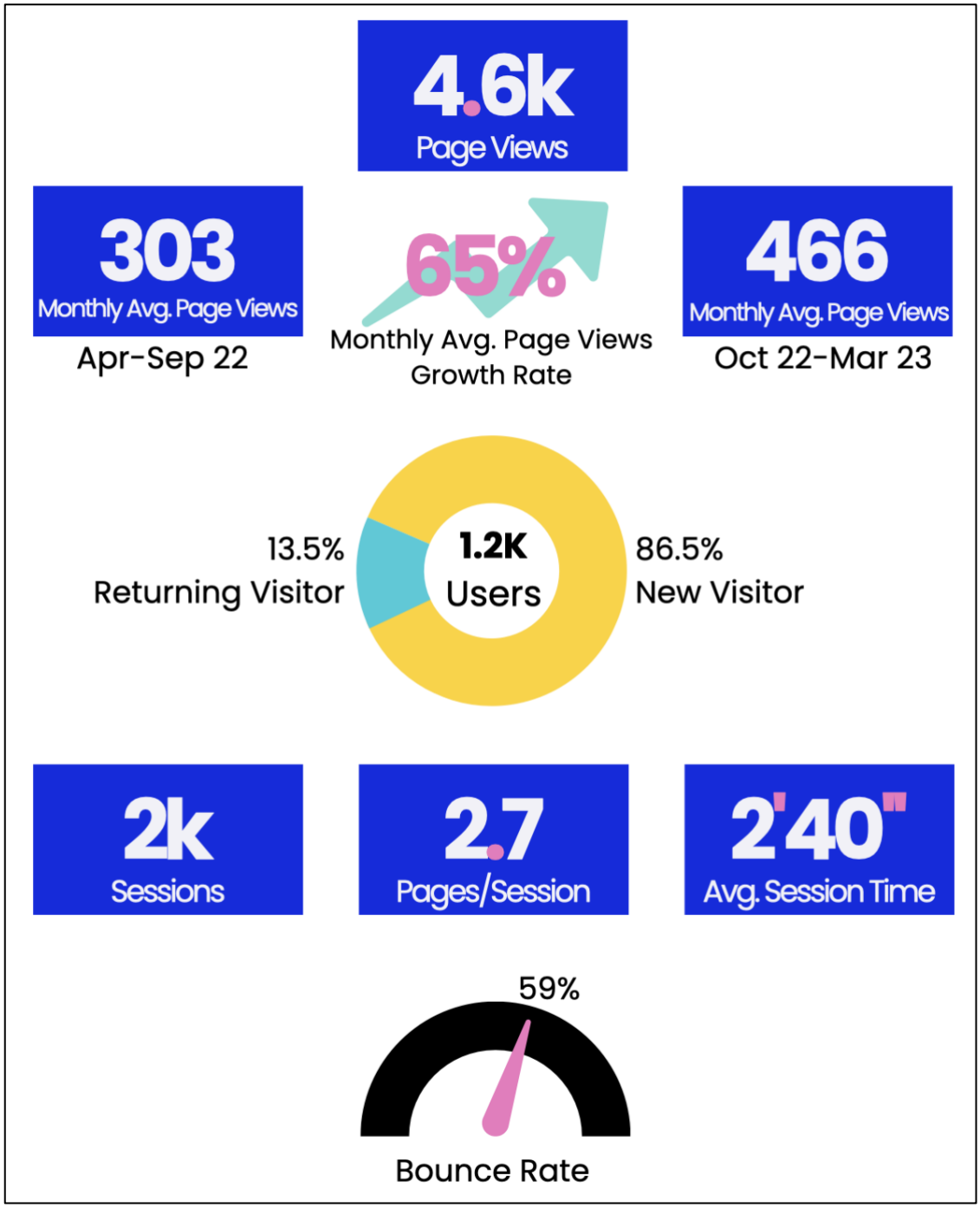
Within the blogs section, the WP7 editorial team has created two sub-sections:

1. SciPerspectives. This sub-section acts as a dialogue forum where members of the Surrounded by Science consortium and external stakeholders share their views, in the form of an interview, on their work on informal science education. Dr. Sherman Rosenfeld (WIS), Dr Luigi Cerri & Dr. Flora Di Martino (IDIS), and Dr. Hannie Gijlers (UT) have been featured in SciPerspectives.
2. What We Are Reading, Listening to & Watching. In this sub-section, which was launched in November 2022, the WP7 editorial team picks and shares recommended books, articles, podcasts, and videos related to informal science learning. There have so far been 3 posts published under this sub-section.

2.3.1.2 Project website: metrics

Google Analytics are used to keep track of and analyse website traffic. The advantages of using Google Analytics include gaining insights into website visitors' behaviour, demographics, and interests, which can inform website improvements and marketing strategies. An overview of the project's website analytics is shown in Figure 12.

Figure 12. *Overview of project website analytics (01 Apr 2022 – 23 Mar 2023).*



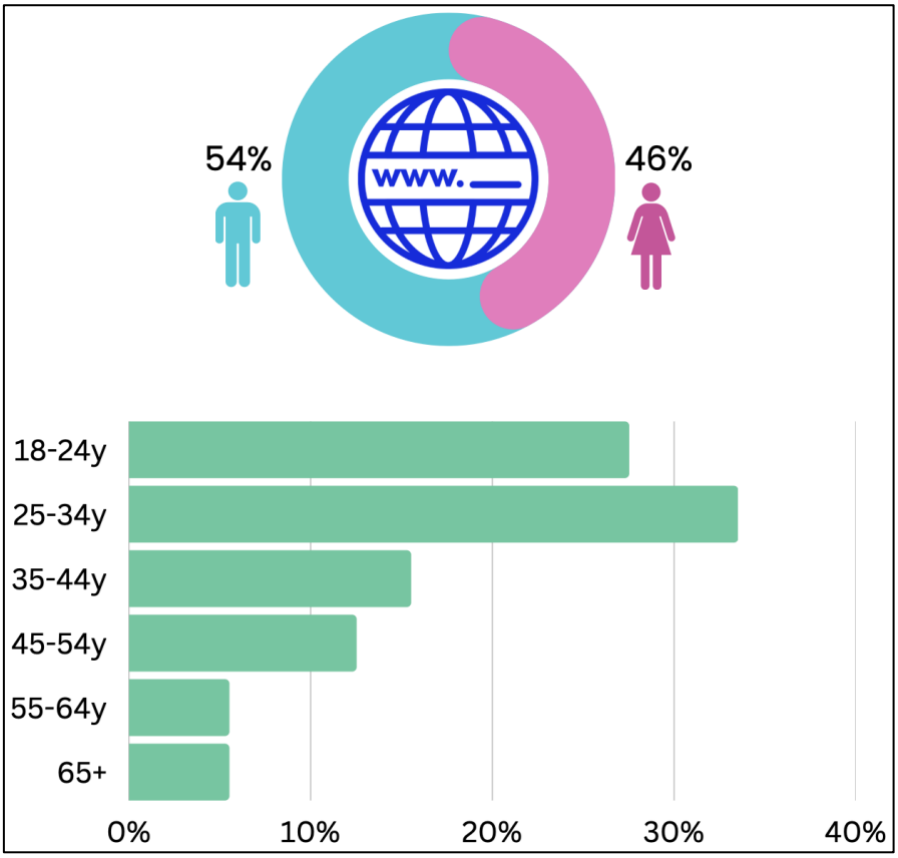
Looking at the data shown in Figure 12, the following observation can be made:

First, while the number of page views is by all standards low, the monthly average page views growth rate is 65%, indicating a progress between the first and second half of the project website's 12-month lifecycle. Second, on average users spend 2'40'' on the website and view 2.7 pages during a single session. Both the average session duration and pages/session ratio are in line with the industry standard, (2.6 and 2-3 minutes, respectively)[15]. Third, the bounce rate, defined as the percentage of visitors who enter the site and then leave rather than continuing to view other pages within the same site, is at the high end of non-ecommerce content websites (35% to 60%)[16].

[15] https://lp.littledata.io/average/pages-per-session-(all-devices)
[16] https://www.semrush.com/blog/bounce-rate/

Looking at the project website demographics (see Figure 13), the data indicates a gender-balanced and relatively young audience as more than half of the users are aged 18-34 years old.

Figure 13. *Project website demographics: gender and age (01 Ap 2022 – 23 Mar 2023)*



In terms of geographical coverage, the site has reached out to users from 70 countries across all continents (see Figure 14). Yet as shown in Table 7a and 7b, most users are in the consortium countries. Mexico is an exception. As will be explained below, the high ranking of Mexico relates to a specific communication activity (see Table 9). Overall, the website appears to have a decent geographical reach.

Figure 14. *Website geographical coverage (01 Ap 2022 – 23 Mar 2023)*

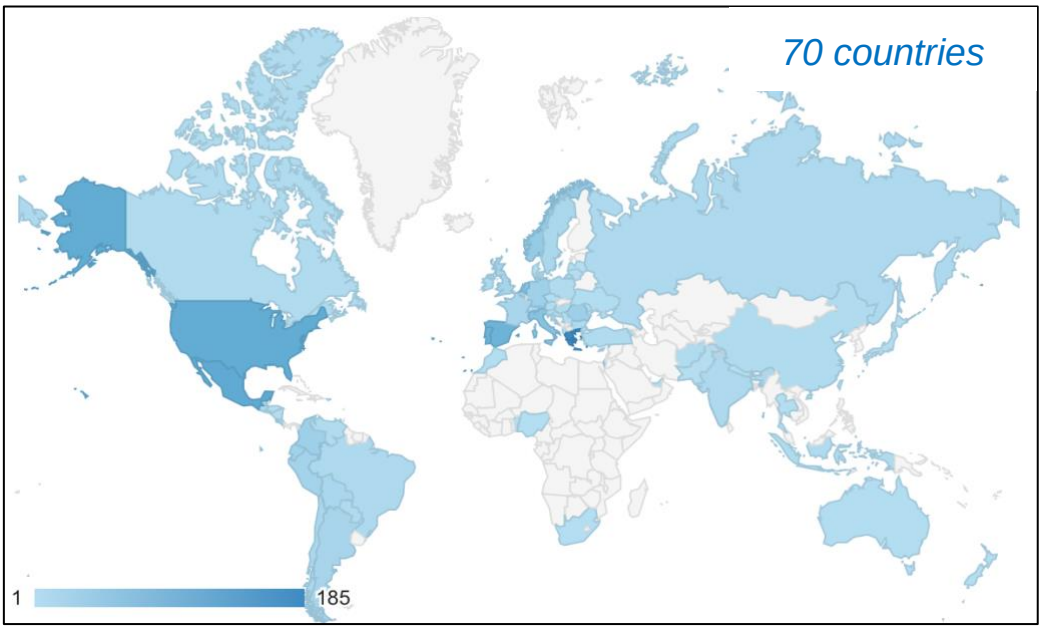


Table 7a. *Website geographical coverage: Top 10 countries by number of users (01 Ap 2022 – 23 Mar 2023)*

	Country	Users ↓
1.	Greece	185
2.	Mexico	116
3.	United States	112
4.	Spain	96
5.	Portugal	95
6.	Italy	59
7.	Netherlands	56
8.	Norway	41
9.	Belgium	31
10.	Colombia	31

Table 7b. *Website geographical coverage: Top 10 countries by number of sessions (01 Ap 2022 – 23 Mar 2023)*

	Country	Sessions ↓
1.	Greece	381
2.	United States	301
3.	Portugal	195
4.	Mexico	122
5.	Italy	120
6.	Spain	115
7.	Netherlands	106
8.	Norway	70
9.	Belgium	59
10.	Poland	40

Looking at the most visited pages of the website (Table 8), the data indicates that the top 3 sections are: (1) landing page, (2) News and Events, and (3) About. Placed in the 4th position, the blog post[17] about the podcast with the Spanish science communicator Javier Santaolalla was the most visited "News & Events" item. As shown in Table 10, this news item attracted approximately 10% of the total page views of the website. Given Santaolalla's popularity in Latin America and particularly Mexico, this may explain the high placement of Mexico in the list of countries by number of users observed in Table 7a.

Table 8. *Top 10 most visited pages with number and % of total page views (01 Ap 2022 – 23 Mar 2023)*

	Page	Page Views
		4,627 % of Total: 100.00% (4,627)
1.	/	1,321 (28.55%)
2.	/news-and-events/	559 (12.08%)
3.	/about/	472 (10.20%)
4.	/2023/01/20/podcast-in-the-universe-of-javier-santaolalla/	377 (8.15%)
5.	/our-team/	360 (7.78%)
6.	/media-centre/	282 (6.09%)
7.	/outcomes/	262 (5.66%)
8.	/contact/	161 (3.48%)
9.	/2023/03/15/discovering-the-size-of-the-earth-the-eratosthenes-experiment/	64 (1.38%)
10.	/2022/12/16/science-chaser-a-tool-for-learning-science-and-learning-evaluation-on-the-go/	41 (0.89%)

The data shown in Table 8 and Table 9 provide valuable information not only for understanding the appeal of the website but more importantly for performing interventions in specific sections to increase the web traffic. One action that was recently taken towards this direction concerned the "About" section by enhancing it with the addition of an interactive visual that captures in a better way how science proficiency is conceptualised and assessed in the framework of the project.

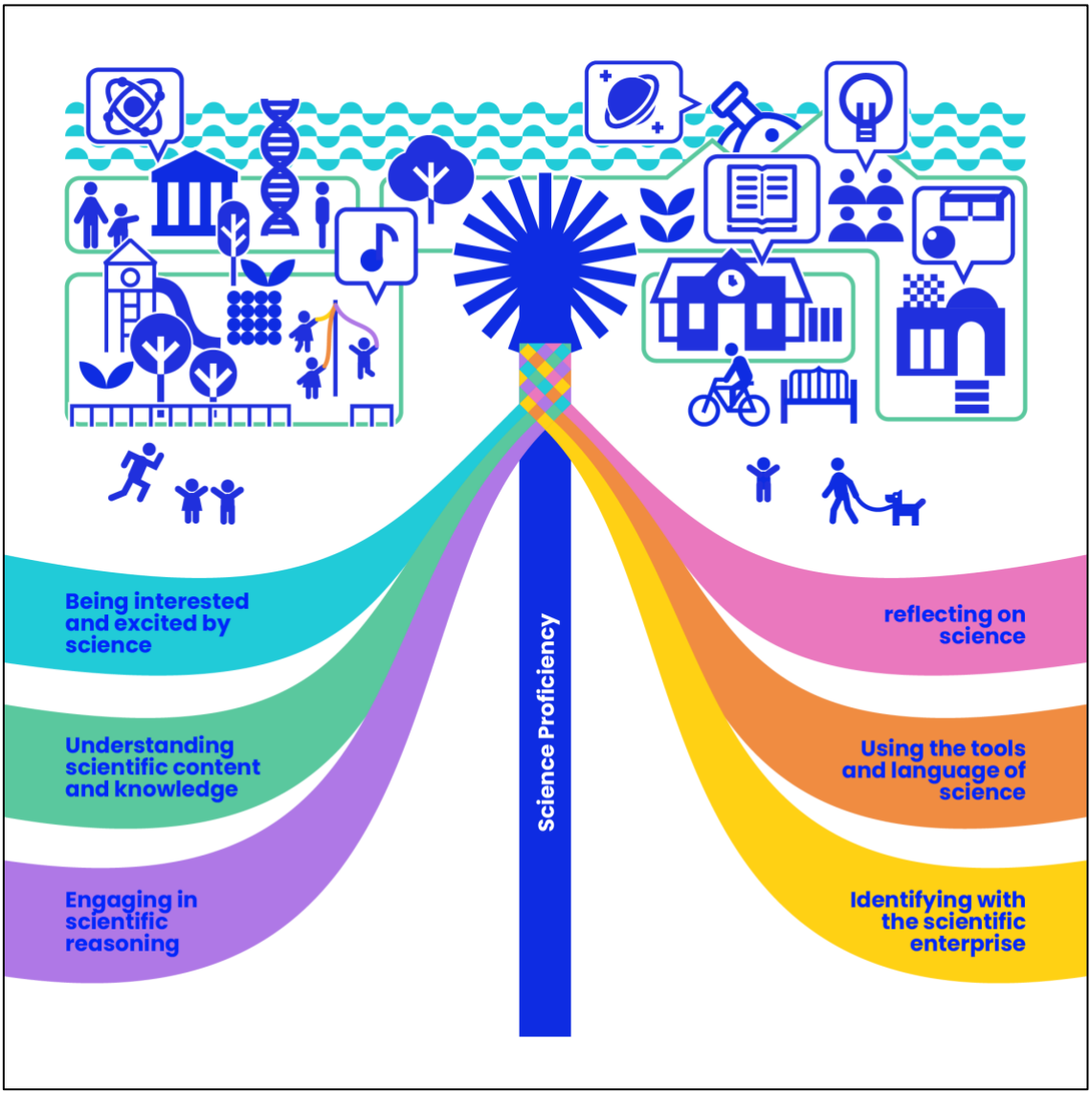
[17] https://surroundedby.science/2023/01/20/podcast-in-the-universe-of-javier-santaolalla/

Based on recommendations made by the WP6 team, the re-visualisation of science proficiency (see Figure 15), is now part of the "About" section of the website, aiming at conveying in an interactive manner this unique conceptual framework across multiple target audiences, and especially teachers/educators, parents, and the general public.

Table 9. *Highest number of page views across website's lifecycle (and correlation with dissemination/communication activity)*

Time period	Page views	Landing page	% of page views per landing page
20-24 Jan 2023	451 (~10% of total page views)	Podcast: In the Universe of Javier Santaolalla (published on 20 Jan 2023)	96%
Note: The discrepancy between the 451 page views shown in this table and the 377 views shown in Table 8 is due to the variety of URLs Google Analytics uses to identify the same page.			

Figure 15. *New visual of science proficiency*[18]

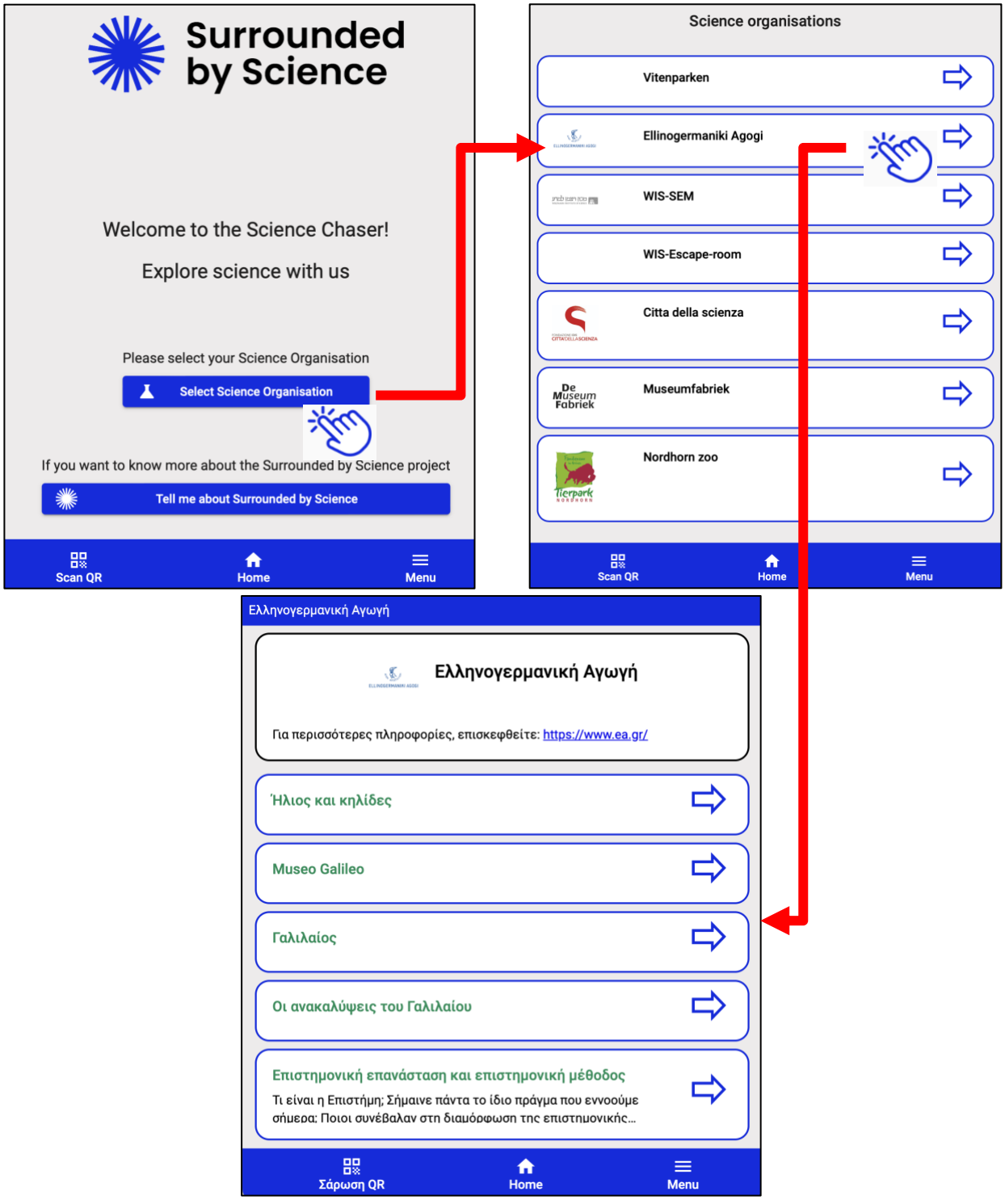


[18] https://surroundedby.science/about/

2.3.1.3 Science Chaser

The Science Chaser is one of the three key components of the Digital Toolbox, that is the central software of the project (see D3.1 and D3.3). As described in D7.3, the Science Chaser is a web application designed primarily for mobile devices and tablets but which is also compatible with PCs. The Science Chaser is the component with which the participants interact. The participants use the Science Chaser on their mobile devices. The Science Chaser will let the participants interact with the iSTEM activities of science organisations. And it will track how the participants use the iSTEM activities. The first version of the Science Chaser, which was released in M12 (September 2022), mainly aimed at achieving the basic functionality and ease of use (Figure 16).

Figure 16. Visual example of navigation steps in *the Science Chaser*

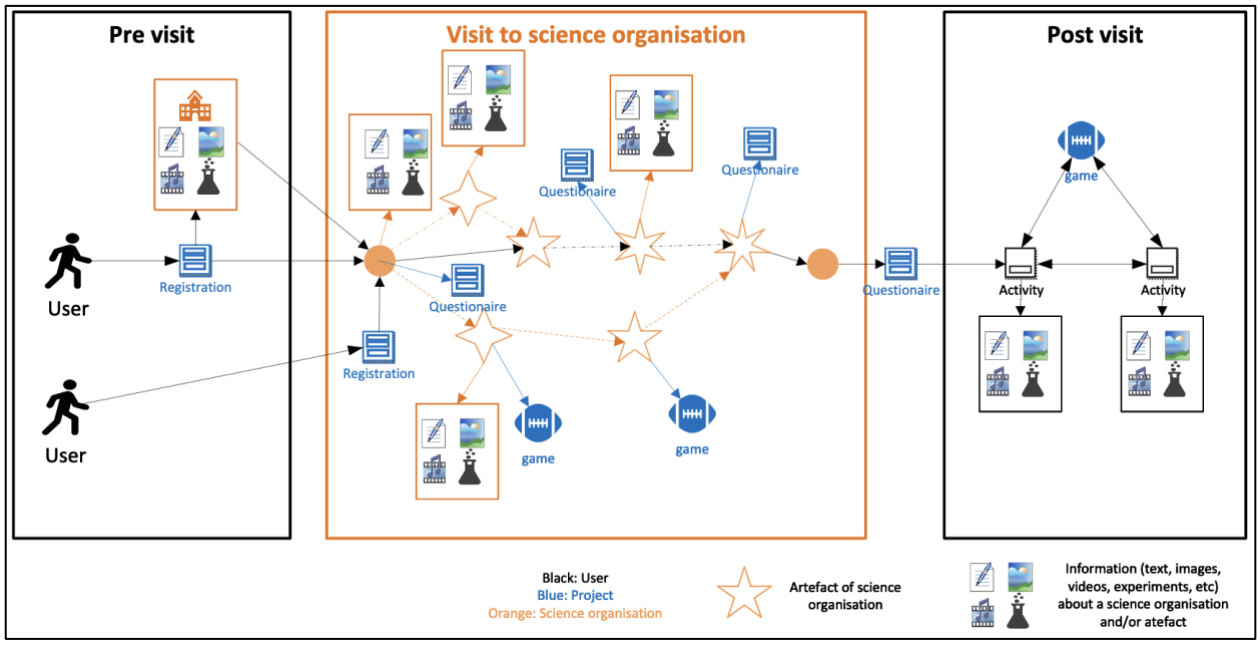


As described in detail in D3.3, the main features of the Science Chaser are:

1. Home section. This section is accessible by clicking the home button on the toolbar at the bottom of the page. It shows the logo of the Surrounded by Science project, alongside two buttons. The first button takes the user to the science organisations list described in (5), and the second button takes the user to the Surrounded by Science project website.
2. Scan QR code section. This section can be accessed by clicking the “Scan QR code” button on the bottom toolbar. This section features a QR code scanner, which will appear when the user clicks the “Start Scan” button. This scanner can scan special Surrounded by Science QR codes which will redirect the user of the Science Chaser to the corresponding science organisation, artefact, or content element.
3. Profile section. This section can be accessed by clicking the “Menu” button on the bottom toolbar, then clicking on “Profile”. The profile section can be used to check the details of the currently logged in user. This can be helpful to remember the login name of the user. In the nearby future, the user can change the personal details and languages. This section also has a logout button which logs the user out of the app.
4. About section. This section can be accessed by clicking the “Menu” button on the bottom toolbar, then clicking on “About”. The about section gives some information about the Surrounded by Science project and has links to the projects’ social media pages. It also shows the time of the latest build.
5. Science organisation section.
    a. General information. This section can be accessed by clicking the home button on the bottom toolbar, and then clicking on “Select Science Organisation”. The science organisations section is where the user of the Science Chaser can view the science organisations, alongside their artefacts and content elements.
    b. Science organisations list. The science organisations list will show the list of science organisations along with some of their details (see Figure 16 for an example). When the user clicks a science organisation, he or she can view the details of that organisation.
    c. Science organisation details. In this section the user can view the details of the science organisation. Here the name of the organisation is shown, alongside the URL of the website of this organisation.
    d. Artefact details. Here the user can see the details of the artefact, including the name of the artefact, its description, its relevant domains, and an icon showing whether the artefact is intended to be viewed indoors or outdoors.
    e. Content element details. The user can view the content element in action, in their language of choice. Content elements are language dependent, for every language a separate content element must be created. Here the user can interact with the content element or go back to view another one if they wish, using the back button.

An integrated diagrammatic representation of the interactions a user can do with the Science Chaser is shown in Figure 17

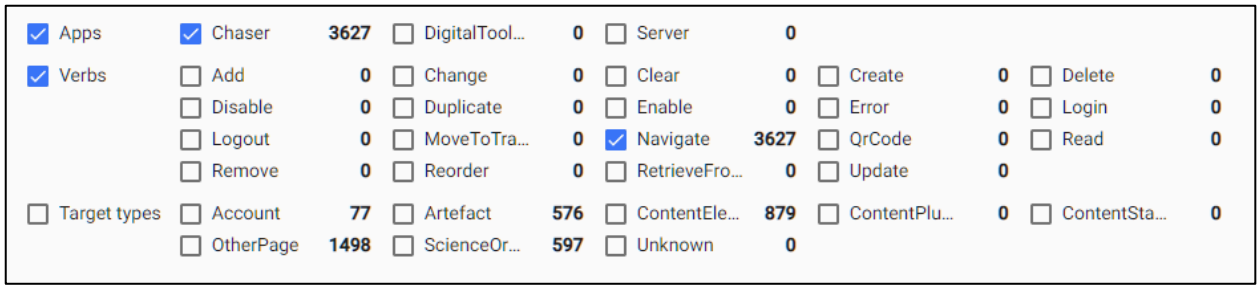
Figure 17. *User interactions with the Science Chaser*



The Science Chaser is designed to track the users' actions by keeping an internal log viewer. Besides the many metrics that are used to collect data about users' interactions with the learning paths, one important parameter for the purposes of this report is the so-called navigation events, which is the equivalent to the page views metric.

As of 23 March 2023, there were 3,621 navigations (i.e., page views) in the Science Chaser (see Figure 18).

Figure 18. *Snapshot of Science Chaser internal log actions viewer*



It is noteworthy that the 3,621 navigations refer to page views of all five features of the Science Chaser described above.

2.3.2 Social channels

As defined in D7.1, the aim of social channels of Surrounded by Science is to communicate the project's key messages according to its targeted audiences. Social media platforms have distinct attributes that shape their use and effectiveness for communication and awareness-raising purposes. Each platform has its own unique strengths and weaknesses that should be considered when developing a social media strategy. The tactics that work best for promoting Surrounded by Science engaging with the target audiences shown in Table 4, and achieving the respective specific goals are therefore likely to vary depending on the chosen platform and the target audience's preferences and behaviours.

For example, Facebook's strengths lie in its wide reach, targeted campaigns, and opportunities to build brand awareness and community relationships through engagement and interaction.

Instagram's visual-centric platform is effective for showcasing products, building a visually appealing brand aesthetic, and reaching a younger demographic. Twitter's fast-paced, real-time platform is ideal for engaging in conversations, sharing quick updates and insights, and establishing thought leadership.

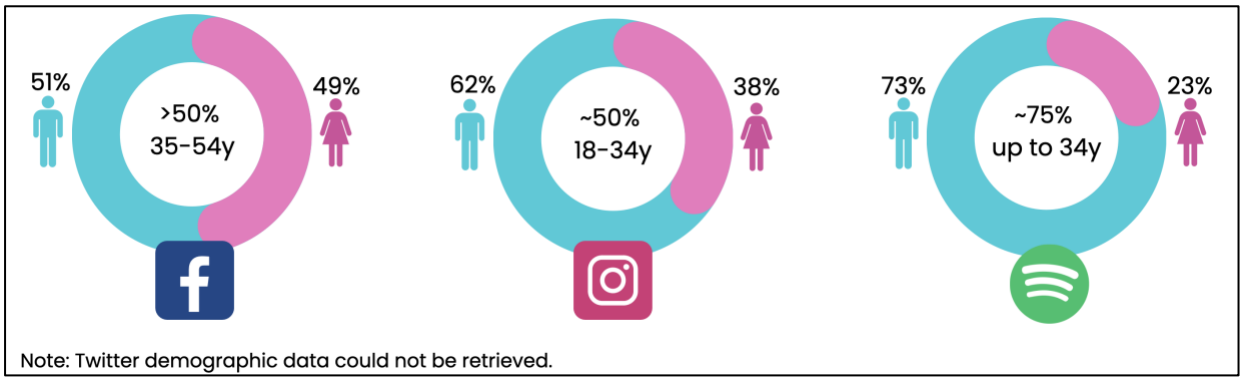
Notwithstanding the above distinctions, Surrounded by Science's communications strategy aims primarily at increasing the visibility and reach of the project's website to meet KPI-10. A key step towards meeting this KPI is to have a strong social media presence. Table 10 summarizes the main tactics on how social channels can be used to help boost the website's digital footprint.

Table 10. *Social media tactics*

Social Media Tactic	**Tactic Description**
1. Share content regularly	Posting regular updates, blog posts, or other relevant content on social media platforms can drive traffic to the website and increase engagement with your audience. Consistency is key when it comes to sharing content on social media, as it helps establish the brand's credibility and presence online. Social media can also be used to share content from the website's blog, landing pages, or other pages that provide value to followers.
2. Use visuals	Visuals such as images and videos are essential on social media as they can help capture the attention of followers and increase engagement rates. Using high-quality images and videos that are relevant to the brand and content can make posts more appealing and shareable. This can drive traffic to the website by encouraging followers to click through to the website to learn more.
3. Engage with your audience	Social media is a two-way conversation, so engaging with followers by responding to comments, messages, and mentions can help build relationships and increase engagement rates. Engaging with audience can also help drive traffic to the website by encouraging followers to visit the website to learn more about the brand.
4. Collaborate with influencers	Partnering with influencers that resonate with the project's vision, mission, and goals help increase the visibility of the website and drive traffic. Influencers have large followings and can help increase the visibility of the brand by re-sharing posts, or other collaborations. By partnering with influencers who align with the brand's values and target audience, new audiences can be reached, thereby increasing the website's online presence.

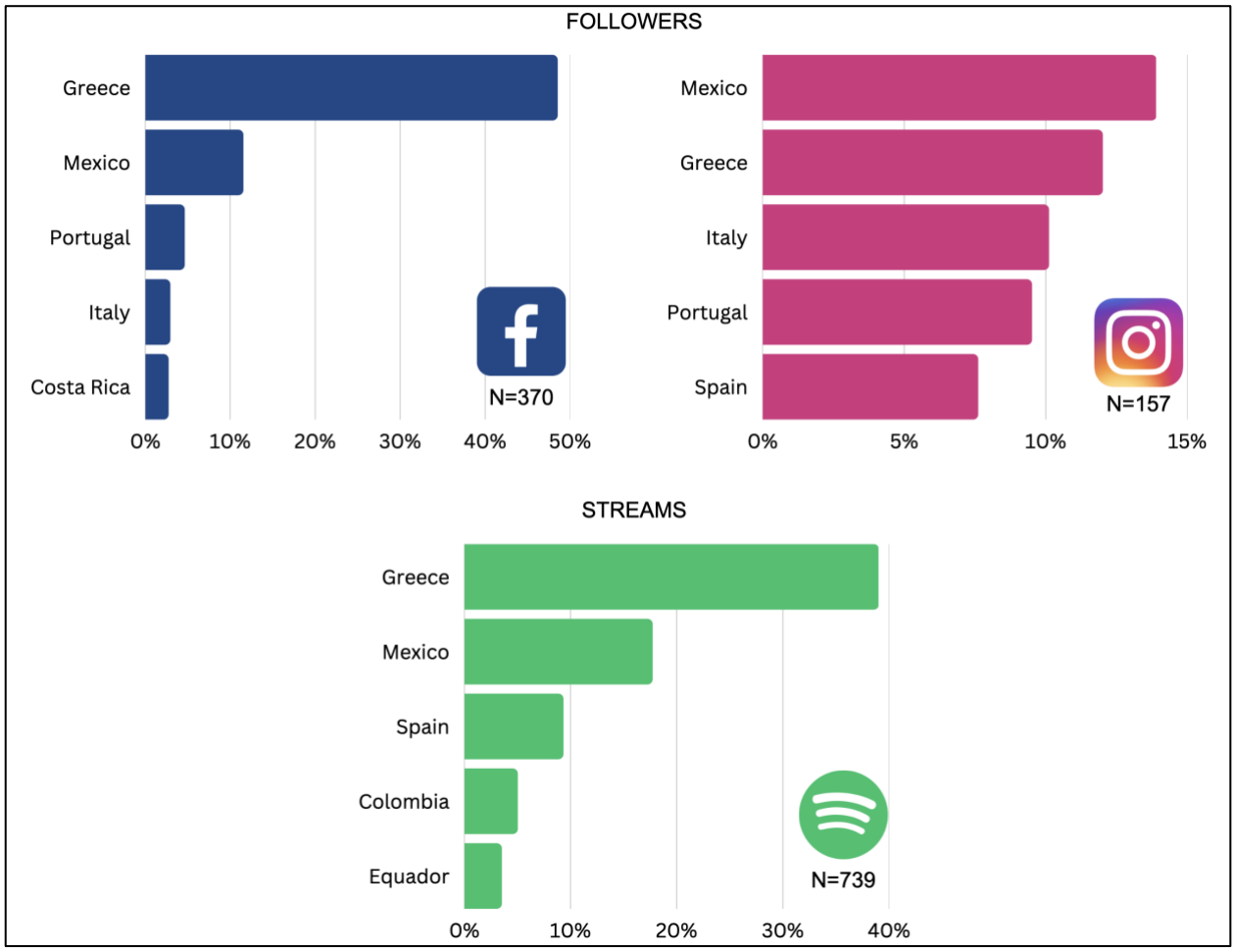
2.3.2.1 Social channels: audience demographics

Figure 19. *Social channels demographic data (gender and age)*



2.3.2.2 Social channels: audience location

Figure 20. *Social channels: Top five countries per social platform (Facebook, Instagram, Spotify)*



Note: Twitter data not available.

Figure 21. *Twitter metrics*

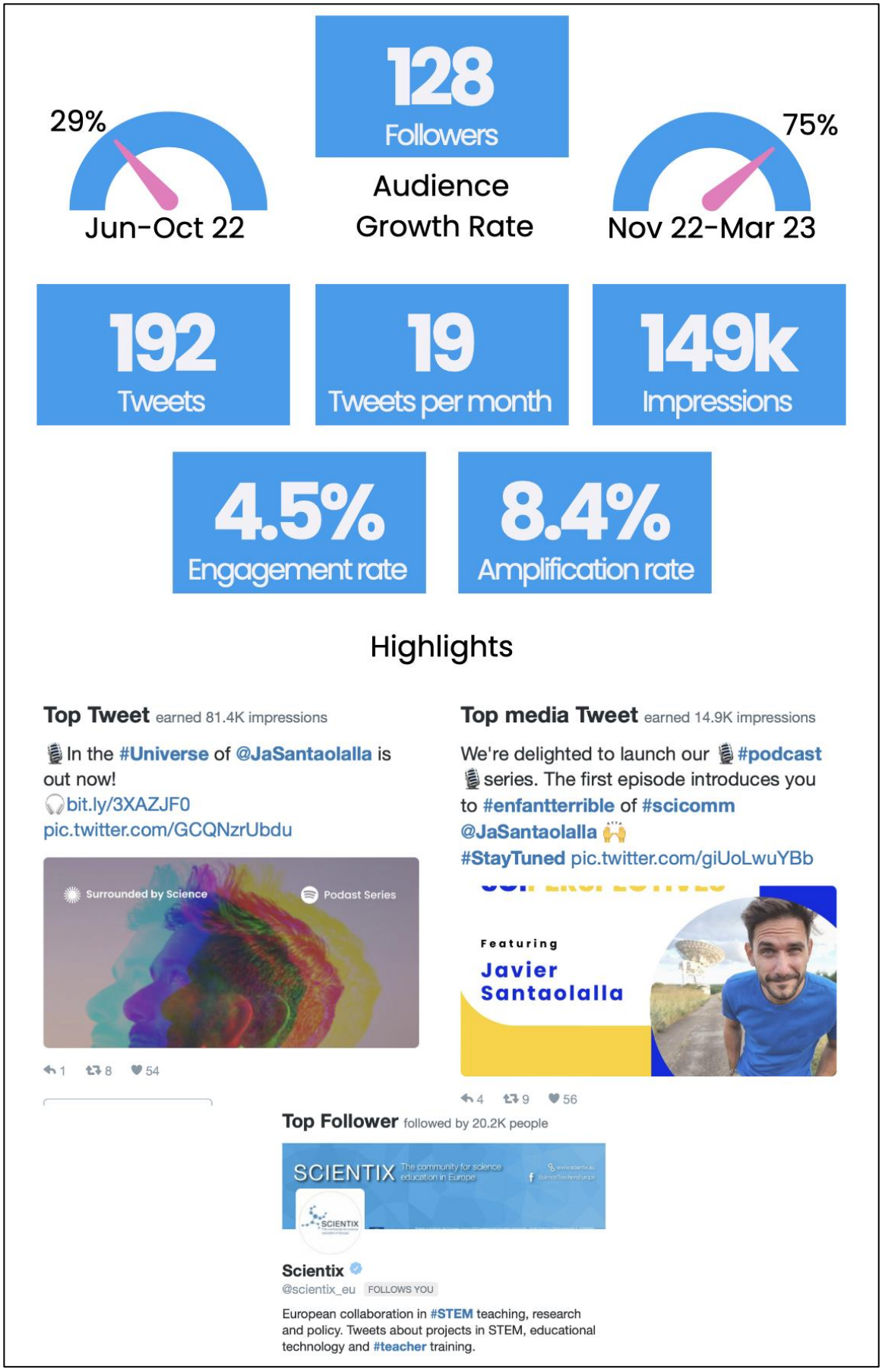


Figure 22. *Facebook metrics*

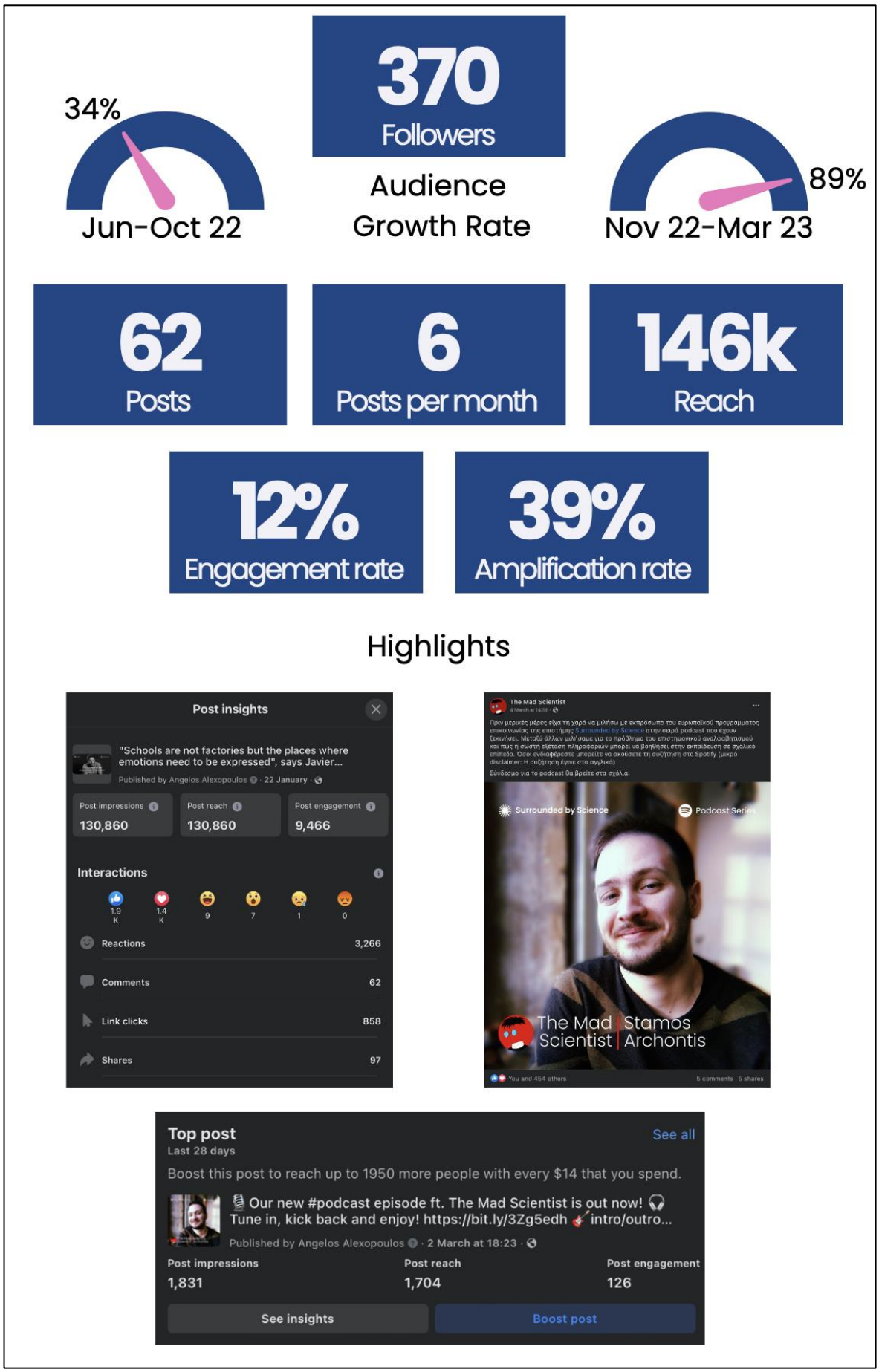


Figure 23. *Instagram metrics.*

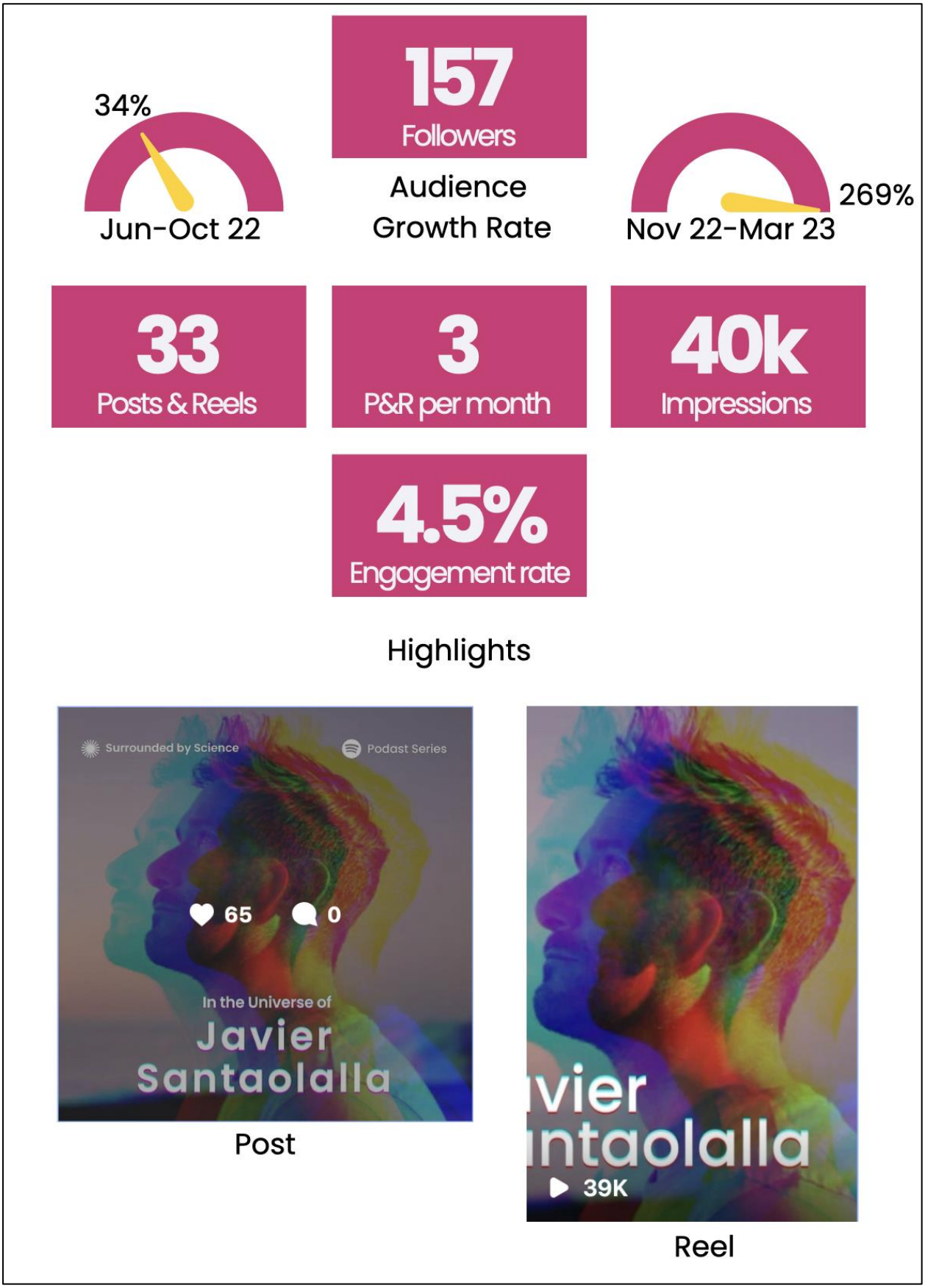
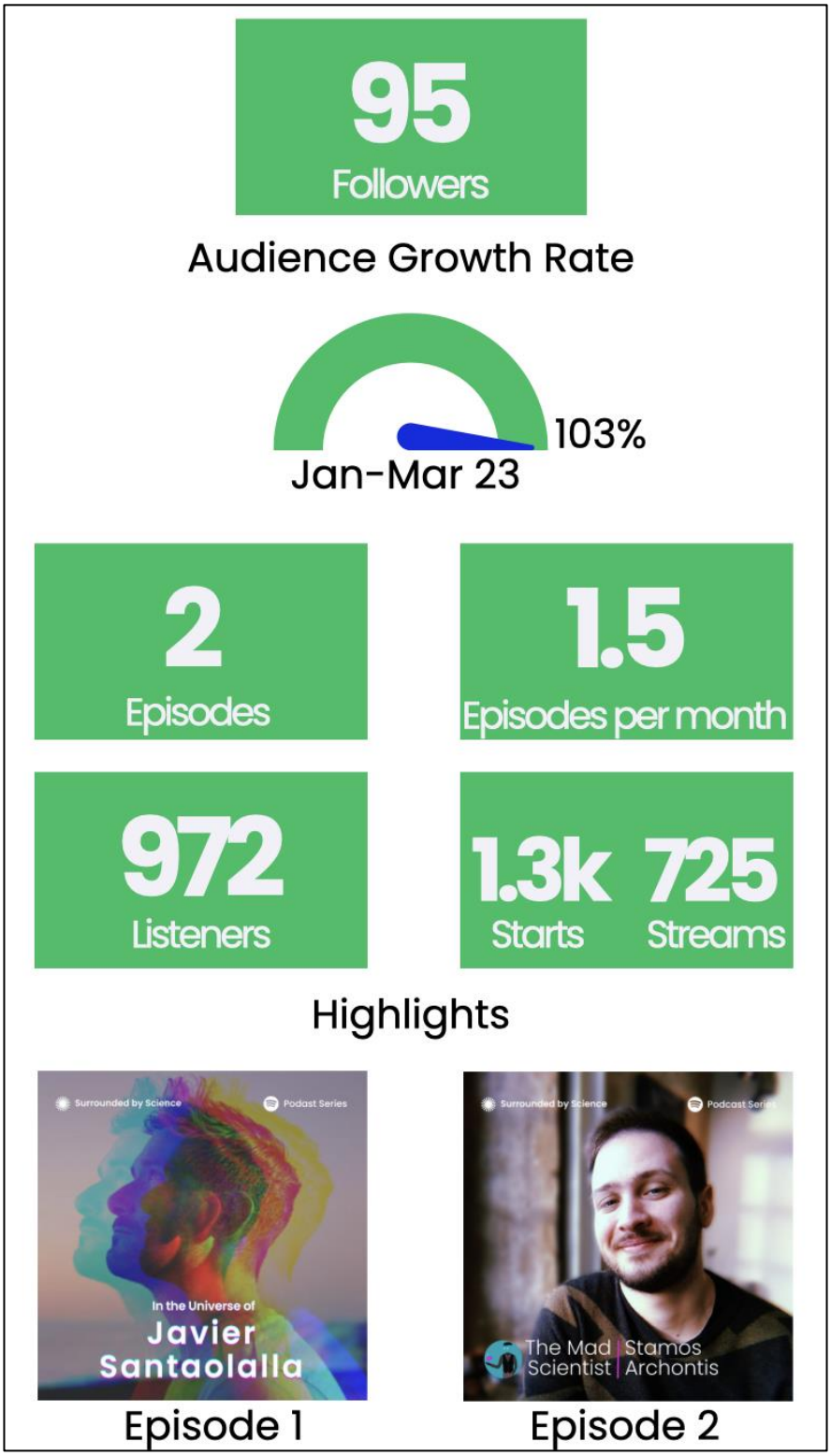


Figure 24. *Spotify metrics.*



2.3.3 Email campaigns

Email campaigns play a critical role in communicating information about project activities, results, and outcomes to a wide audience. By creating engaging email messages, the project team can keep stakeholders informed and interested throughout the project's life cycle. Furthermore, email campaigns allow the team to evaluate the effectiveness of their communication strategies, providing valuable insights.

In the framework of Surrounded by Science, email campaigns primarily revolve around the project's newsletters, which provide a comprehensive overview of project activities and outcomes, as well as news, useful resources and other materials related to informal science learning. Through targeted and compelling newsletters, the project team can keep stakeholders engaged and informed, highlighting important milestones and achievements. By tracking newsletter open and click-through rates, the effectiveness of email campaigns can be measured, and based on the results further tailoring of their messaging can be performed accordingly.

The Surrounded by Science newsletters are issued on a quarterly basis. Integral to the effectiveness of the newsletter campaigns is the number and types of subscribers to the project's mailing list according to GDRP requirements. The evolution of subscribers on the project's mailing list over the period Jun 2022 – March 2023 is displayed in Figure 25, while a summary of the performance of the project's newsletter campaigns is shown in Figure 26.

Figure 25. *Number and types of subscribers to project's mailing list*

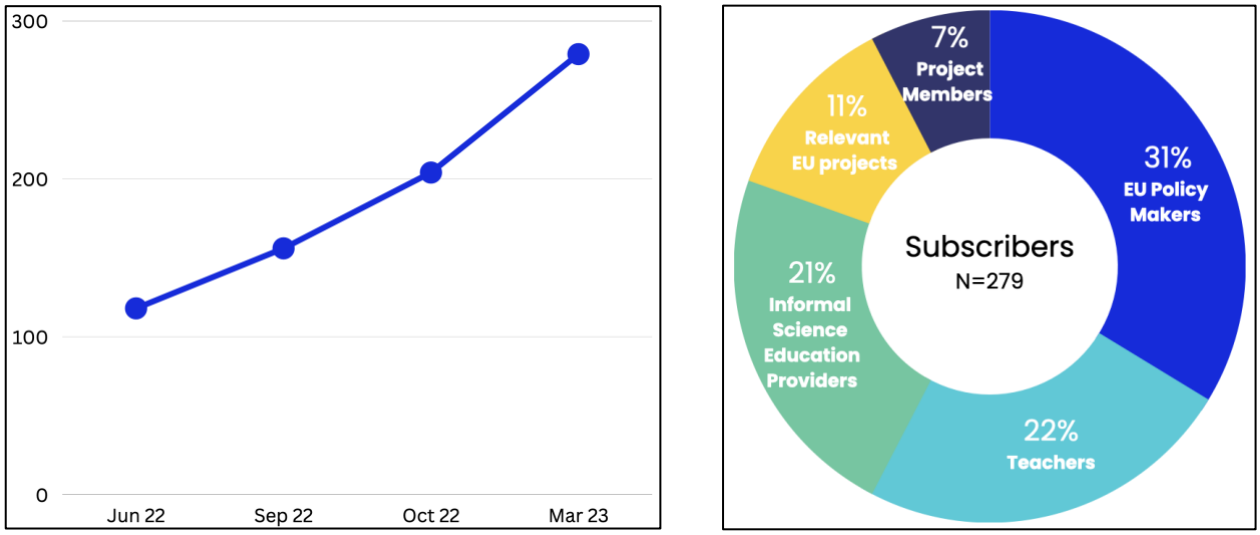
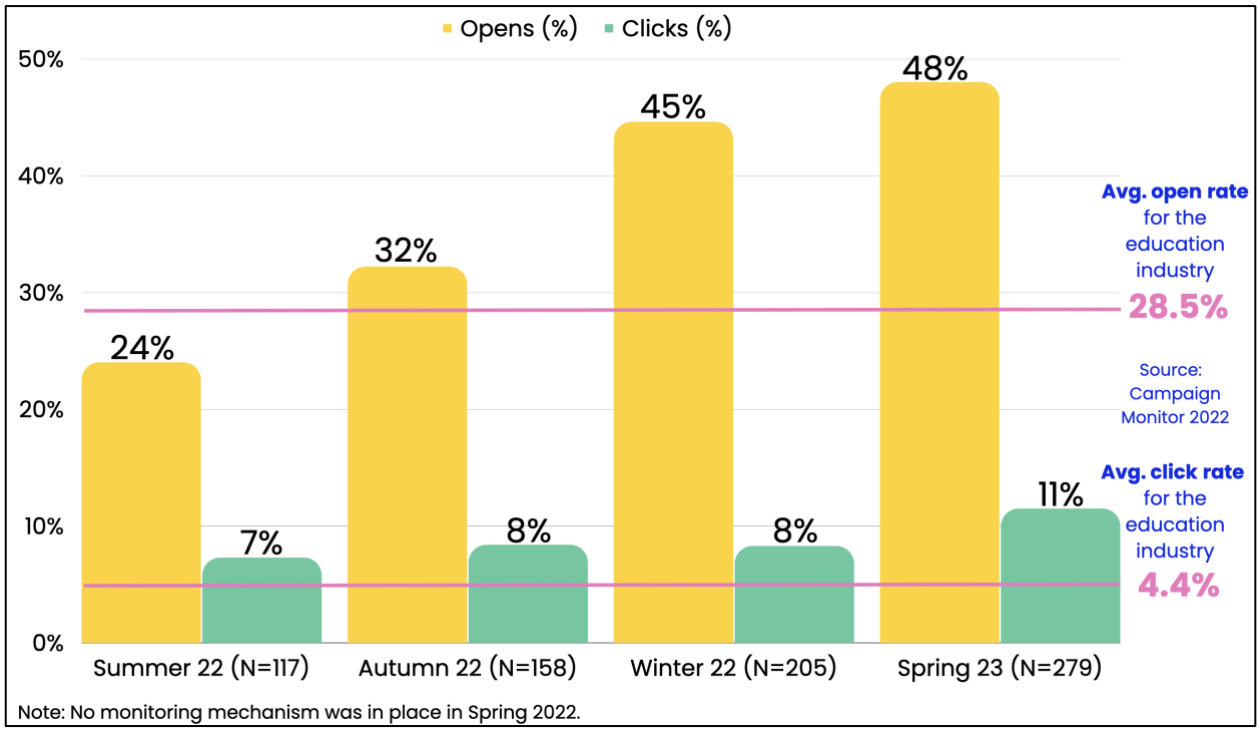


Figure 26. *Monitoring the performance of newsletter campaigns*



As shown in Figure 25 the number of subscribers increased by 138% between June 2022 and March 2023, reaching 279 subscribers. Almost one third of those are EU policy makers, followed by teachers (22%), informal science education providers (21%), members of relevant EU projects (11%) and, finally, members of the Surrounded by Science consortium (7%).

Moreover, as shown in Figure 26 monitoring data indicate an increase both in the open rate and the click rate of the newsletter campaigns. In particular, the open rate between June 2022 and March 2023 was doubled. A similar yet smaller increase occurred regarding the click rate. It may be worthwhile noting that since Autumn 2022 both the open and click rates are above the average rates for the education industry based on benchmarking data provided by the Campaign Monitor 2022[19]. To also note that the average open rate and click rate across industries is 10.12% and 2.13%, respectively (GetResponse, 2020[20]).

[19] https://www.campaignmonitor.com/resources/guides/email-marketing-benchmarks/
[20] https://www.hubspot.com/marketing-statistics

3 Communication and Dissemination: Patterns and Lessons Learned

Identifying patterns in digital footprint metrics collected from website traffic and social media is crucial for the WP7 team to update and optimise their communication and dissemination strategies to meet the respective KPIs. In this section, we present some insights based on key patterns mined in Google Analytics and social media platforms. Understanding these patterns can help guide an appropriate set of corrective actions to ensure success in achieving the KPIs by considering the multi-faceted interrelationships between dissemination events and digital communication activities.

3.1 Project website: user acquisition and behaviour

Combined with website analytics presented in Section 2.3.1, additional user acquisition and behaviour metrics presented below can provide valuable insights into how visitors interact with the project website. Based on these insights, the WP7 team can make informed decisions for improving user engagement and ultimately increasing the number of page views according to the requirements of KPI-10.

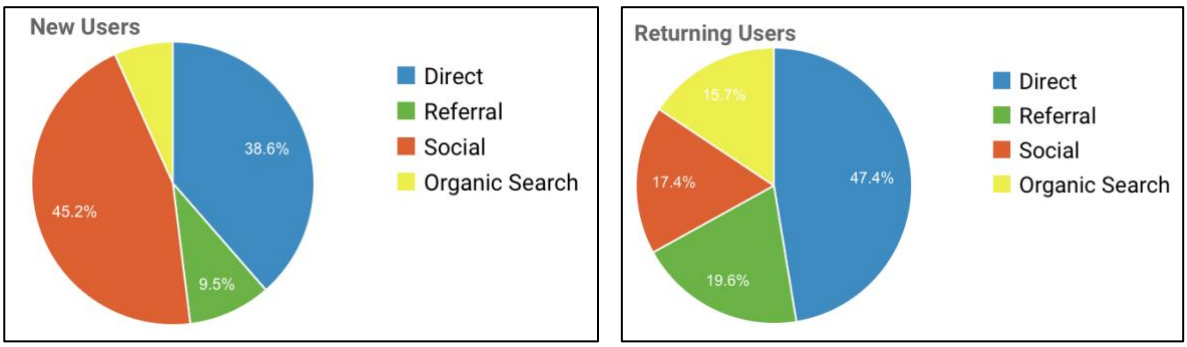
Understanding user acquisition and behaviour metrics such as such as bounce rates, time on page, traffic sources and referral paths can help identify which channels are driving the most traffic to the website (user acquisition), and how visitors interact with the website (user behaviour).

To gain better insight into user acquisition and behaviour, we performed a comparative analysis on top traffic sources by new and returning visitors. The rationale behind this type of analysis was due to the low returning visitors rate (13.5%) presented in Section 2.3.1 (see Figure 10), which is indicative of an unbalanced new vs. returning users ratio. While it typically depends on the industry, an ideal returning visitor rate is estimated to be around 30% to 50%[21]. A returning visitor rate within this margin is a sign of a loyal community that sticks around and being the foundation of the website, leading to more page views. Before proceeding to the results of the comparative analysis, it may be useful to define the type of traffic sources. Here is a breakdown of the four main traffic sources used in Google Analytics:

1. Referral: Traffic that occurs when a user finds you through a site other than a major search engine
2. Social: Traffic from a social network, such as Facebook, Instagram, or Twitter
3. Organic: Traffic from search engine results that is earned, not paid
4. Direct: Any traffic where the referrer or source is unknown.

The distribution of new and returning users per type of traffic source is shown in Figure 27.

Figure 27. *Project website traffic sources: new vs returning users*



[21] https://www.adriel.com/glossary/what-is-a-good-new-vs-returning-visitor-ratio?9cd1e1fa_page=2

Comparing the type of channels per type of user (i.e., new, returning), we can make the following observations:

- Social networks are the main channel through which new users come to the website.
- About 3 out of 10 of returning users come to the website through referrals and organic sources.

The results of the comparative analysis of user acquisition and behaviour organised per type of channel (i.e., direct, referral, social, organic search) are shown in Figure 28.

Figure 28. *User acquisition and behaviour per type of channel and type of user*

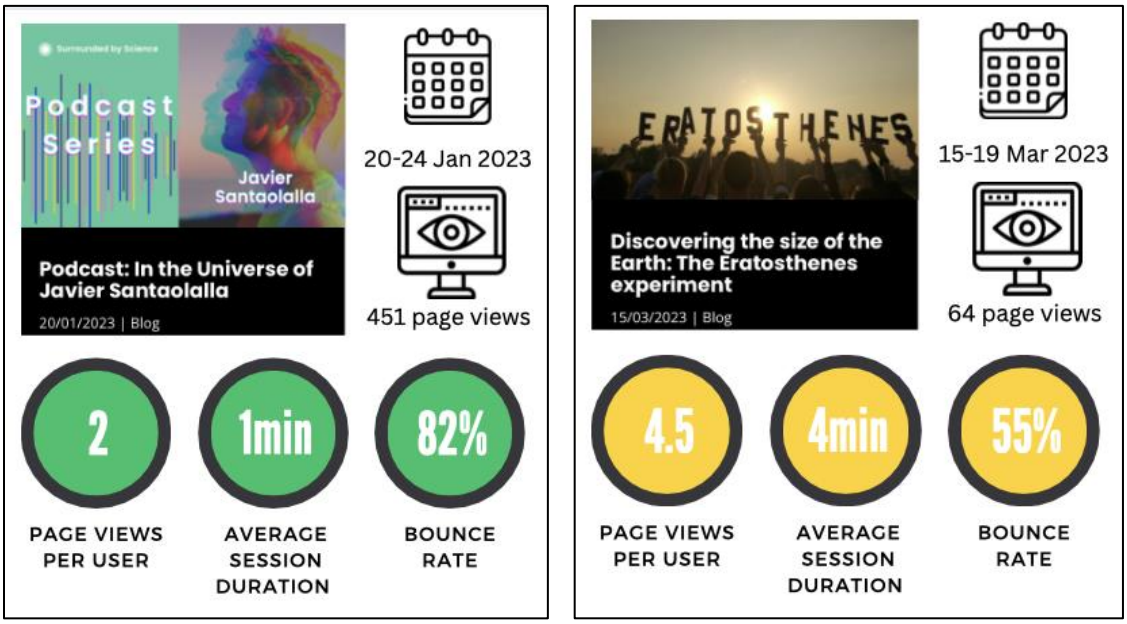
	Acquisition			Behaviour		
	Users ↓	New Users	Sessions	Bounce Rate	Pages/Sessi...	Avg. Session Duration
Returning Users	196	0	854	47.54%	2.72	00:04:34
New Users	1,216	1,219	1,219	67.76%	1.95	00:01:20
1 Direct	109 469			48.29% 48.41%		
2 Referral	45 115			57.35% 56.03%		
3 Social	40 550			42.99% 88.91%		
4 Organic Search	36 82			42.24% 53.66%		

Based on the results shown in Figure 28, it is evident that returning users are significantly more engaged with the website compared to new users. This is reflected on both acquisition and behaviour metrics. Indicatively:

- 42% of total sessions (N=854) are performed by 13.5% of the users, that is the returning users (N=196).
- The average number of sessions for returning users is 4.36 compared to 1.00 for new users.
- The average session duration for returning users is more than three times higher than that for new users (4’34’’ vs 1’20’’).
- The overall bounce rate for returning users is 20% less than that for new users, while this difference increases to 42% for those users who come to the website through social networks.

Further analysis was conducted to compare the users’ behaviour patterns in relation to the most visited pages (see Table 8) and particularly pages under the “News & Events” section. The rationale behind focusing on the “News & Events” section was to gain a better understanding of the impact that concrete dissemination and communication items have had on user’s engagement with the website. Specifically, we chose to look at the average user’s behaviour concerning the 4th most visited page and compare it with the 9th most visited page (see Table 8). The results are shown in Figure 29.

Figure 29. Comparing *average user acquisition and behaviour per type of communications item*



Looking at the average user acquisition and behaviour metrics between the two communications items, it is evident that despite that the “Podcast: In the Universe of Javier Santaolalla” item outperformed the “Discovering the size of the Earth: The Eratosthenes experiment” item in terms of page views, it lagged in terms of user engagement. This comparison provides us with lessons that we can apply to future editorial choices that combine the “best of two worlds”, that is to boost page views while increasing user engagement and loyalty.

3.2 Social media: the double-edged sword of boosting visibility and engagement

In today's digital era, social media has become a vital marketing tool for brands, providing an opportunity to reach a large and diverse audience. However, for new brands, such as the Surrounded by Science project, gaining a significant audience through social media channels can be a challenging task, especially without using paid campaigns. One of the primary difficulties faced in increasing their audiences through social media is the impact of the algorithms implemented by large social media platforms.

Algorithms play a critical role in determining what content is displayed on users' feeds on social media platforms. Social media platforms use complex algorithms that consider various factors, such as user interests, demographics, and engagement history, to determine what content is relevant and should be displayed on a user's feed. These algorithms can be challenging to navigate for new brands as they do not have a substantial following or engagement history, making it difficult for their content to be prioritized on users' feeds.

Another difficulty faced by new brands in increasing their audiences through social media is the high level of competition on these platforms. Social media platforms are saturated with content from various brands, making it challenging for new brands to stand out and capture the attention of potential followers. This challenge is further compounded by the fact that users' attention spans on social media are relatively short, meaning that brands need to create high-quality, engaging content to capture and retain users' attention. Moreover, new brands may not have access to the same resources as established brands, making it difficult to create high-quality content that resonates with users. Additionally, without a significant budget, it can be challenging to create paid campaigns that can help increase brand awareness and visibility.

To overcome these challenges, the WP7 team has focused on building a strong and engaged community on social media. Based on the social media analytics presented in Section 2.3.2, the following observations can be made about the digital footprint of the three social channels the project manages:

- Facebook: Despite the small number of followers, the Facebook account has a decent digital footprint with a relatively high engagement rate and amplification rate. This indicates that the content shared on Facebook is resonating well with the audience, and people are sharing and reacting to it. However, the number of followers could be improved to increase the reach of the content.
- Twitter: Despite the high number of tweets, the engagement rate and amplification rate are relatively low. This suggests that the content may not be resonating well with the audience, and the target audience may not be effectively reached through Twitter. Increasing the number of followers and focusing on creating more engaging content could help improve the digital footprint on Twitter.
- Instagram: The account has a low number of followers, but the engagement rate is similar to that of Facebook. This suggests that the content is resonating well with the audience, but the reach is limited due to the low number of followers. Focusing on increasing the number of followers and using relevant hashtags to improve the reach of the content could help improve the digital footprint on Instagram.
- Spotify: Even though the podcast series is still in its early stages (i.e., 3 months), the number of streams, listeners, and followers accumulated in just two episodes is a positive sign and indicates that the content is resonating with the target audience. Specifically, with 725 total streams and 972 listeners, it appears that the podcast series has a strong listener retention rate, with many people streaming multiple episodes. Additionally, the podcast series having 95 followers suggests a loyal following who are interested in staying updated on the podcast's content. With continued effort and investment in high-quality content production and promotion, there is potential for the podcast series to continue growing and reaching a wider audience.

However, the biggest challenge the WP7 team is currently faced with is the significant discrepancy between the number of total impressions on the social media platforms (i.e., 336,000) and the number of page views on the project website. This suggests that there is a need to improve the effectiveness of the social media strategy in driving traffic to the website, especially because social networks have so far been the largest traffic source, accounting for 44.3% of the total traffic to the website.

Some tactics to increase traffic to the website include the following:

- Optimise social media content: The content being shared on social media platforms should be optimized to drive traffic to the website. This may include calls to action in posts and using visually engaging graphics or videos to capture the audience's attention.
- Promote website through social media ads: Social media ads should be considered to drive traffic to the website. Targeted advertising options are offered by platforms like Facebook, Twitter, and Instagram, which can help the desired audience to be reached and encourage them to visit the website.
- Engage with social media followers: The audience should be encouraged to engage with the content and website by responding to comments and messages and sharing user-generated content. A sense of community can be built around the brand and the followers can be encouraged to visit the website to learn more.

- Optimize website for search engines: The website should be optimized for search engines by including relevant keywords and meta tags on its pages. This can help improve the website's visibility in search engine results pages and drive more traffic to the site.
- Create compelling content: Compelling content that is relevant and valuable to the target audiences should be created for the website. This can include blog posts, infographics, videos, and other types of content that demonstrate expertise and provide value to the audiences. This is particularly important since 58% of current users access the website via their mobile devices.
- Collaborate with influencers and industry leaders to expand your reach: By partnering with influencers or industry experts who have a large following or authority in your niche, you can tap into their audience and leverage their influence to promote your brand or product. To implement this tactic effectively, relevant influencers or industry leaders who align with the project's visions, mission, and target audience must be identified. This can involve researching social media influencers and experts in the industry, examining their content and engagement metrics, and determining whether they are a good fit for the brand.

3.3 Dissemination events: capitalising on the momentum

As evidenced in Section 2.2, the project has so far performed well for it has accomplished 65% of the respective KPI-9. Based on partners' reports on planned dissemination events for the second half of the project (see Table 11), it is estimated that KPI-9 will be met or even exceeded by the end of Surrounded by Science's lifecycle.

Table 11. *Indicative list of confirmed future dissemination events (Apr-Aug 2023)*

Partner	**Event title**	**Start-end date**	**Location**	**Target audience**	**Level**	**Focus**
EPS	Girls in Quantum	01-30 April	Online	Primary and secondary education teachers, pupils, students, adults, young researchers	National EU Int'l	Promoting the project and STEM for young girls, raising awareness of the importance of women and girls in STEM.
EPS	Everything you wanted to know about quantum, but were afraid to ask	01-30 June	Online	Primary and secondary education teachers, pupils, students, adults, young researchers	National EU Int'l	Spread knowledge via evidence-based interventions by bringing civil society and academia in a fruitful and open discourse. The focus of the dissemination would be also on promoting the project and disseminating the results of the

						webinar/training programme.
UT	PCST Conference	11-14 April	Rotterdam, The Netherlands	Global science communication community	EU	Dissemination of project results and networking with stakeholders
UT	Ecsite Conference	15-17 June	Valletta, Malta	Science educators and researchers interested in out-of-school STEM learning	EU	Dissemination of project results
UT	EARLI Conference	22-26 August	Thessaloniki, Greece	Scientists in the field of learning and instruction research	EU	Dissemination of project results
NTNU	Schools Surrounded by Science	12-14 April	Trondheim and Asker, Norway	Headmasters, teachers, students	Local	Disseminate the project and the Science Chaser app

While more dissemination events are being scheduled, the list of the 6 events confirmed for the period between April and August 2023 combined with the 14 events already implemented during the first half of the project's lifecycle appears to achieve the KPI-9 target minimum of 20 events.

Based on the above, it is ripe time to capitalise on the strong momentum from future dissemination events. A productive way to do so is by using dissemination events and communication activities in a complementary and synergistic way to maximise the impact and sustainability of the project. Here are some examples of how these two approaches can work together:

- Plan communication activities around dissemination events: Dissemination events, such as conferences or workshops, provide opportunities to engage directly with stakeholders and share their findings. By planning communication activities, such as social media campaigns or press releases, around these events, the visibility and reach of the project's results and outcomes can be increased.
- Incorporate multimedia into dissemination events: Dissemination events can be enhanced by incorporating multimedia elements, such as videos or infographics, to help convey key messages and findings in a visually engaging way. These elements can also be repurposed for use in other communication activities, such as social media posts or blog articles.
- Engage with stakeholders through social media: Social media platforms, such as Twitter, can be used to engage with stakeholders and promote research findings. One tactic is to use hashtags to increase visibility, tag stakeholders to encourage engagement, and share multimedia content to help convey key messages.
- Leverage media coverage: Dissemination events can be used to generate media coverage, which can be leveraged to increase the reach and impact of a research project. The WP7 team can work with communications professionals to develop press releases and media pitches and prepare for interviews with reporters to ensure that key messages are effectively communicated.

- Incorporate stakeholder feedback: Dissemination events can provide opportunities for soliciting feedback from stakeholders, which can be used to refine and improve communication activities. This feedback can then be used to identify areas for improvement and adjust communication strategies accordingly.

4 Conclusions: Looking Back to Look Forward

The approach taken to this half-term report included three steps: first, to offer a comprehensive overview of the status of communication and dissemination activities by providing relevant data, metrics and analytics across the whole spectrum of channels and tools developed by the project until M18; second, to monitor and evaluate the progress of communication and dissemination activities against the respective KPIs, that is, KPI-9 and KPI0-10; and third, to suggest corrective actions and tactics to enlarge the footprint of Surrounded by Science in reaching out and engaging with its target audiences, and raising awareness of the unique added value and innovation that the project brings for enriching science education research, practice, and policy.

The Surrounded by Science's communication and dissemination strategy, as outlined in Section 1, takes an integrated approach. Accordingly, dissemination and communication activities are viewed as complementary and can support each other in various ways. Dissemination activities can support communication activities by providing a broader platform for engagement and feedback, while communication activities can support dissemination activities by providing a coherent and compelling narrative that captures the research's significance and relevance. By aligning and integrating dissemination and communication activities, it is possible to maximize the impact and effectiveness of the project.

The growth observed in the digital communication footprint, which in total has reached more than 340k impressions over a 12-month period, indicates that the project is gaining some visibility and reaching a decent audience. However, only 10% of the total impressions come from the website. Addressing this imbalance is a key priority for the WP7 team towards meeting KPI-10. As mentioned in Section 3.3, one way to address this challenge is by taking advantage of the strong momentum generated by the project's future dissemination events to maximize through complementary and synergistic communication activities. To achieve this, several approaches can be implemented, including planning communication campaigns around dissemination events, incorporating multimedia into dissemination events, engaging with stakeholders through social media, leveraging media coverage, and incorporating stakeholder feedback. These approaches aim at increasing the visibility and reach of the project's results and outcomes but also enhance the quality of communication and ensure that stakeholders' needs and expectations are addressed.

A set of concrete actions, already identified and agreed upon, to be implemented in the immediate future include:

- Further integration of the Science Chaser web-based app into the project website
- Production of audio-visual materials such as animated videos, vidcasts, and interactive infographics. These elements can also be repurposed for use in other communication activities, such as social media posts or blog articles.
- Organisation of webinars and curation of online dissemination events in collaboration with relevant EU projects, activity providers, EU policy makers and prominent researchers in the field of informal science learning evaluation
- Development of press releases and media pitches to ensure that key messages and results are effectively communicated.
- Planning of communication activities around dissemination events. By planning communication activities, such as social media campaigns, around these events, the visibility and reach of the project's results and outcomes can be increased.
- Establishment of a more consistent posting frequency on social channels.
- Further collaboration with influencers that resonate with the project's goals and target audiences.

To effectively implement the above actions, the WP7 team is continuing to update its internal management processes to improve coordination, productivity by making optimal use of the human resources and allocated WP7 effort per partner.

In close collaboration with the project coordinator and the WP leaders, the WP7 is dedicated to implementing all the corrective actions outlined in this report with the aim of achieving the communication and dissemination objectives and effectively meeting the respective key performance indicators by the end of the project's lifecycle.

5 List of appendices

Appendix I Dissemination activities: Partners' reports

Appendix I

Dissemination activities: Partners' reports

Partner: UT

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at a conference	
Name of Event	Ecsite Conference	**URL**	https://www.ecsite.eu/activities-and-services/ecsite-events/conferences/2022-ecsite-conference
Start-End Date	2-4 June 2022	**Location**	Heilbronn
Target audience	researchers, science educators	**N.er of participants**	Approximately 50
Level of dissemination (Local, Regional, National, EU, Outside EU)	EU	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Informing audience about the project, promoting the project, connecting to science engagement institutions.
Title of Dissemination Activity	Formal and informal science education: bridging the gap	**Brief Description**	Together with partners from IDIS, EA and NTNU we presented the project, and plan for the science chaser. The session was interactive, asking the audience to react to statements using a voting tool. Each partner talked about their own expertise. UT presented the design of the Science Chaser.
Language	English	**Other partner(s) involved? (Which?)**	EA, NTNU, IDIS
Additional information (Please add photos or other type of evidence such as links, news, etc.)	Are uploaded in the conference folder on teams – presentation. Dr. Angelos Alexopoulos shared pictures and responses on social media of the event. An article about the event was also written and posted on the project website.		

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 2	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Colloquium at the University of Twente	
Name of Event	IST colloquium	**URL**	Not available
Start-End Date	11 October 2022	**Location**	Enschede, The Netherlands
Target audience	Scientists, educational science students	**N.er of participants**	20
Level of dissemination (Local, Regional, National, EU, Outside EU)	Local	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Dissemination of results
Title of Dissemination Activity	Success criteria for informal STEM learning activities: Views of practitioners, visitors, and researchers	**Brief Description**	A presentation was given on the results of the first phase of the project, i.e., different types of learning activities for all three contexts, their key design features and success criteria. In addition, the next steps of the project were presented and discussed, i.e., the design and development of a systematic assessment methodology that can analyse the impact of informal STEM activities.
Language	English	**Other partner(s) involved? (Which?)**	No
Additional information (Please add photos or other type of evidence such as links, news, etc.)			

Partner: EA

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Plenary talk at a conference	
Name of Event	Serbian Scientix Conference: Creative and Modern STEM Educational Practices	**URL**	Not available
Start-End Date	10 December 2021	**Location**	Belgrade
Target audience	Primary and secondary science teachers,	**N.er of participants**	Approximately 80
Level of dissemination (Local, Regional, National, EU, Outside EU)	National	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Informing the audience about the project, promoting the project, connecting to schools and science teachers.
Title of Dissemination Activity	Open Schooling for Science Learning Continuum for All	**Brief Description**	Organised by the Center for the Promotion of Science, which is the National Contact Point of Scientix for Serbia, the event brought together around 80 primary and secondary science teachers from all over Serbia. Participants had the opportunity to get introduced to innovative approaches and good practices in the field of STE(A)M education, including the Surrounded by Science project. Participants learned about the concept of Science Proficiency, the innovative tools for assessing Science Proficiency, and the role informal STEM activities play in advancing positive attitudes towards science and science career aspirations.
Language	English	**Other partner(s) involved? (Which?)**	

Additional information (Please add photos or other type of evidence such as links, news, etc.)	 *Dr. Angelos Alexopoulos on stage during his plenary talk at the Scientix conference in Belgrade.*

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 2	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at conference	
Name of Event	19th Annual Conference of the Greek Physical Society	**URL**	https://www.eef19.gr
Start-End Date	18-20 November 2022	**Location**	Loutraki, Greece
Target audience	Physics teachers and educators, researchers, science education and communication professionals, students	**N.er of participants**	80
Level of dissemination (Local, Regional, National, EU, Outside EU)	National	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Informing the audience about the project, promoting the project, connecting to schools and science teachers.
Title of Dissemination Activity	Science is Everywhere: Learning Paths in the School of Tomorrow	**Brief Description**	Participants had the opportunity to get introduced to innovative approach to informal science learning as proposed by the Surrounded by Science project. Participants learned about the concept of Science Proficiency, the innovative tools for assessing Science Proficiency, and the role informal learning paths play in advancing student positive attitudes towards science and science career aspirations.
Language	Greek	**Other partner(s) involved? (Which?)**	No
Additional information (Please add photos or other type of evidence such as links, news, etc.)			

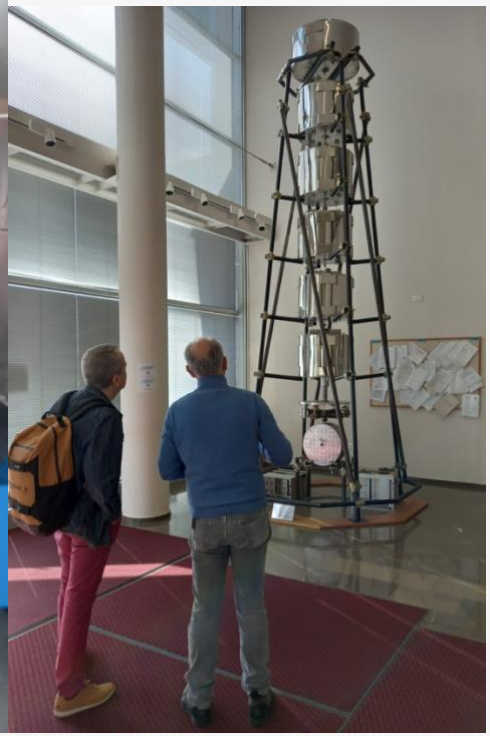
Partner: EPS

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Publishing programme: Social media, newsletters	
Name of Event	EPS Citizen Science Competition Challenge	**URL**	http://reinforce.ea.gr/eps-citizen-science-competition/
Start-End Date	01/09/2022-30/09/2022	**Location**	Online via the EPS and Reinforce website
Target audience	18+ years old citizens, based in an EU member state or in an associated state or a third country to Horizon Europe and to be registered in the Zooniverse platform fulfilling the above-mentioned conditions are eligible to participate in the challenge.	**N.er of participants**	The people who registered at the competition were in total of 370 while the dissemination activities via de Reinforce website reached a total of 4200 views.
Level of dissemination (Local, Regional, National, EU, Outside EU)	The dissemination has been made on various levels starting with the proximity of local networks, regional, national and was focused on the EU. However, some participants have registered outside the EU.	**Focus of dissemination** (Promoting project, disseminating results, etc.)	In the first round of the project, the focus of the dissemination was on promotion of the project and increasing awareness on the subject of citizen science, while in the second round on the project the focus was on disseminating results by sending information updates regarding the project processes (e.g., end of the competition, and also on dissemination of the results (e.g., shortlisted candidates, selection of winners, promoting the insights of the winners of the trips to the EGO-Virgo research center and CERN). The compeition was disseminated also via the monthly newsletter of the EPS.
Title of Dissemination Activity	EPS Citizen Science Competition Challenge	**Brief Description**	During the whole period of the EPS Citizen Science Competition the dissemination activity was done by creating targeted emails inside the Reinforce, EPS and SbS networks and systematic posts on the EPS blog and social media and EPS monthly newsletter.

Language	English	**Other partner(s) involved? (Which?)**	Ellinogermaniki Agogi
Additional information (Please add photos or other type of evidence such as links, news, etc.)	https://drive.google.com/drive/folders/1SUf7r4UB6Duk3_LFr2A4TILANJqr5AZc?usp=share_link https://mailchi.mp/48c472835fa0/eps-news-from-brussels-office-november-2022?e=ec3677d045 https://mailchi.mp/e524ded1f3cc/eps-brussels-office-newsletter-december-2022?e=ec3677d045 https://mailchi.mp/af378097eea3/eps-news-from-brussels-january-2023?e=ec3677d045 https://m.facebook.com/story.php?story_fbid=pfbid0NjBMnkEdYcHzGKDwe5cwRPT8gHGDoLGyNAo2mtAdAUHFp2vi77w39qs8M993zLUQl&id=284314758257768		

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 2	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Visit at the EGO-Virgo Research Centre	
Name of Event	EPS Citizen Science Competition	**URL**	http://reinforce.ea.gr/eps-citizen-science-competition/
Start-End Date	9 March 2023	**Location**	On site, EGO-Virgo research centre, Pisa, Italy.
Target audience	Adult EU citizens, teachers, students, young researchers, academia.	**N.er of participants**	2
Level of dissemination (Local, Regional, National, EU, Outside EU)	Local networks, national and international	**Focus of dissemination** (Promoting project, disseminating results, etc.)	The focus of the dissemination was to showcase the scientific processes and to engage the winners in the scientific community.)
Title of Dissemination Activity	Visit to EGO-Virgo research centre	**Brief Description**	Two of the winners of the competition received two travel grants to visit one of the most renowned research facilities in Europe EGO-Virgo, in Pisa (Italy). The awardees had the opportunity to spend one full day enjoying guided tours through the research facilities, including visits to the control rooms, and labs. The winners were accompanied by in-house scientists and engineers who will be their guides during the visit to the research facilities.
Language	English	**Other partner(s) involved? (Which?)**	EA

Additional information
(Please add photos or other type of evidence such as links, news, etc.)



Partner organization: NUCLIO

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at conference	
Name of Event	SciComPT 2022	**URL**	http://scicom.pt/index.php/scicompt-2022/
Start-End Date	11-13 May 2022	**Location**	Azores, Portugal
Target audience	Science communicators and informal science educators	**N.er of participants**	150
Level of dissemination (Local, Regional, National, EU, Outside EU)	National	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Promoting project
Title of Dissemination Activity	Surrounded By Science: a H2020 Project of Evaluation and Certification of Science Communication and Informal Education Activities	**Brief Description**	Presentation of the SbS project objectives and goals.
Language	Portuguese	**Other partner(s) involved? (Which?)**	
Additional information (Please add photos or other type of evidence such as links, news, etc.)	https://surroundedby.science/2022/06/21/surrounded-by-science-at-scicompt-2022/		

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 2	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at a conference	
Name of Event	Global Hands-On Universe Conference	**URL**	https://handsonuniverse.org/ghou2022/
Start-End Date	22-25 August 2022	**Location**	Online
Target audience	Astronomers, scientists, educators	**N.er of participants**	Not known
Level of dissemination (Local, Regional, National, EU, Outside EU)	EU	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Promotion of the Surrounded by Science project and dissemination of the first results of the interviews
Title of Dissemination Activity	Key characteristics and success criteria for the design of informal science activities	**Brief Description**	In a 30-min presentation, the first results of the project were presented: identification of activity types in different contexts (outreach programmes, designed environments, and technology and media products), their design features and success criteria.
Language	English	**Other partner(s) involved? (Which?)**	UT
Additional information (Please add photos or other type of evidence such as links, news, etc.)	https://surroundedby.science/2022/10/18/video-series-dr-natasha-dmoshinskaia-at-2022-ghou-conference/		

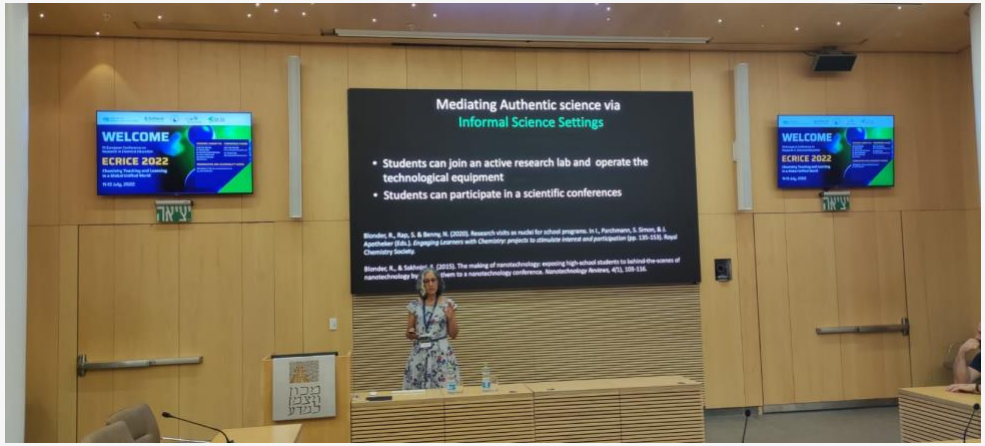
Partner: IDIS

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Workshop	
Name of Event	The Sun, star among the stars	**URL**	
Start-End Date	25 February 2023 and 18 March 2023	**Location**	Città della Scienza, Naples, Italy
Target audience	Adults, Science club members	**N.er of participants**	Approximately 100
Level of dissemination (Local, Regional, National, EU, Outside EU)	Local	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Promoting project activities
Title of Dissemination Activity	Il Sole, stella fra le stelle | 25 febbraio 2023	**Brief Description**	News about the workshop activity and the entire project
Language	Italian	**Other partner(s) involved? (Which?)**	Unione Astrofili Napoletani (external provider, no partner)

Additional information (Please add photos or other type of evidence such as links, news, etc.)	  http://www.cittadellascienza.it/notizie/il-sole-stella-fra-le-stelle-25-febbraio-2023/

Partner: WIS

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at conference	
Name of Event	ECRICE 2022, 15 European Conference on Research in Chemical Education	**URL**	https://www.weizmann.ac.il/conferences/ECRICE2022/
Start-End Date	11-13 July 2022	**Location**	Weizmann Institute of Science
Target audience	Chemistry Education Researchers	**N.er of participants**	150
Level of dissemination (Local, Regional, National, EU, Outside EU)	EU	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Disseminating results of one of the selected activities
Title of Dissemination Activity	*From face-to-face to remote mode: Students and teachers' participation in an authentic outreach activity with the Scanning Electron Microscope*	**Brief Description**	In the lecture Prof. Ron Blonder from Weizmann Institute of Science held a presentation about the Surrounded by Science project as the context for the research of one of the selected case studies (The SEM).
Language	English	**Other partner(s) involved? (Which?)**	-

Additional information (Please add photos or other type of evidence such as links, news, etc.)	 

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 2	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at conference	
Name of Event	ICCE 2022	**URL**	https://icce2022.org.za/
Start-End Date	18-22 July 2022	**Location**	Cape Town
Target audience	Chemistry Education Researchers	**N.er of participants**	100
Level of dissemination (Local, Regional, National, EU, Outside EU)	Outside EU	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Disseminating results of one of the selected activities
Title of Dissemination Activity	*Students and teachers' participation in an authentic outreach activity with the Scanning Electron Microscope: From face-to-face to remote mode*	**Brief Description**	In the lecture Prof. Blonder described the Surrounded by Science project as the context for the research of one of the selected case studies (The SEM).
Language	English	**Other partner(s) involved? (Which?)**	

Additional information (Please add photos or other type of evidence such as links, news, etc.)	

Partner: NTNU

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 1	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Round table discussion	
Name of Event	Final conference of the COMnPLAY SCIENCE project: The potential of coding, making and play-based science learning activities.	**URL**	https://comnplayscience.eu/finalconference/
Start-End Date	04 November 2021	**Location**	Online
Target audience	Teachers, parents, policymakers, and other stakeholder communities	**N.er of participants**	~45
Level of dissemination (Local, Regional, National, EU, Outside EU)	EU	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Promotion of Surrounded by Science project
Title of Dissemination Activity	The future of education: What can be improved and how?	**Brief Description**	Five speakers from different EU projects on science education presented their ideas and goals of their project, showed current or future outcomes and engaged in a general discussion regarding the future of STEM education.
Language	English	**Other partner(s) involved? (Which?)**	EA, UT
Additional information (Please add photos or other type of evidence such as links, news, etc.)	N/A		

Reporting on Dissemination Activities – from 1 October 2021 until 31 March 2023			
Activity 2	**Type of Dissemination activity** (Presentation at Conference; running a workshop; Seminar; etc.)	Presentation at a conference	
Name of Event	Guest talk to Uppsala Computing Education Research Group (UpCERG) , Department of Information Technology, Uppsala University	**URL**	
Start-End Date	01 December 2022	**Location**	Online - participants were in Uppsala
Target audience	Researchers (Professors, Ass.prof. PhDs, Post-docs and other researchers)	**N.er of participants**	12 online and others in the Group/university got the recorded version of the talk but it is not publicly open
Level of dissemination (Local, Regional, National, EU, Outside EU)	EU	**Focus of dissemination** (Promoting project, disseminating results, etc.)	Promoting project
Title of Dissemination Activity	Child computer interaction, designing and evaluating meaningful learning experiences	**Brief Description**	Dr. Sofia Sasopoulou talked about the project's activities, focus etc. She discussed about the science activities etc also got interest on using the Science Chaser app among other possible opportunities
Language	English	**Other partner(s) involved? (Which?)**	
Additional information (Please add photos or other type of evidence such as links, news, etc.)	https://www.it.uu.se/about_us/divisions/vi3/seminars-list/CER/2022		

2022-12-01	13:15-14:45	**Child Computer Interaction, designing and evaluating meaningful learning experiences** **Abstract:** Sofia will present the work and projects they have done in relation to investigating how children interact with systems and are engaged in a fruitful learning experience in STEM contexts. **Bio:** Sofia Papavlasopoulou is Associate Professor at the Department of Computer Science, Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. Her research interests focus on the use of technological tools to support students' learning while enhancing their interest in Computing Education, coding and science in general. Her goal is to investigate the best ways to support a fun, interactive, engaging approach to informal learning science activities for young students and design meaningful learning experiences for them.	**Sofia Papavlasopoulou, NTNU**