Communication, Dissemination and Exploitation Plan

WP6

Information about the report

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Executive Summary

The dissemination and communication work package (WP6) organizes dissemination and communication activities to make the to make the project and it´s activities widely known in partner countries and beyond to maximize the impact of the tested measure. This plan includes the dissemination, communication, and exploitation practices we will realize within the ICSE Science factory project. The strategies set out in this plan provide a framework for both national and European actions. All partners are working together to realize these strategies.

The ICSE Science Factory is a project that supports the EU's efforts to tackle the shortage of scientists and scientifically informed citizens. The need to keep citizens across Europe in these respects has become more evident with the COVID-19 pandemic. Our aim at ICSEfactory is to create partnerships to improve science education for all citizens and to promote science careers as part of societal development. In order to achieve this overall aim, some sub-objectives have been defined.

We are working to provide science activities for all citizens, to increase the interest of young people, especially women, in science, and to create a network between different organizations in society, i.e. professionals and members of the local community. By fulfilling these objectives, we will tackle the shortage of scientists across Europe who can engage in scientific discourse and trust in the role of science in the problem-solving processes of modern society and who are necessary for our community to remain safe and healthy.

Considering the objectives of the project and the population of Europe, dissemination, communication and exploitation activities to reach the right people, from young to old, about the project's products are very important. Because choosing the right target group, using the right messages and delivering these messages through the proper channels require good planning and implementation. This draft plan includes the framework details drawn in the description of action .

Introduction

1. Project Summary

The main aim of the ICSE Science Factory is to support the EU's endeavour to create new partnerships in local communities (e.g., between teachers, students, scientists, researchers, innovators, and professionals in enterprises). There are three objectives to achieve the main objective:

- Objective 1: collaborative science learning opportunities for all citizens on a local level that show the relevance of science for real-life challenges and add to a lifelong learning continuum
- Objective 2: raise the interest in science studies and science careers of young people (of all gender and with a particular focus on girls/women).
- Objective 3: Foster networking and the sharing and applying of research findings amongst teachers, researchers, and professionals across different enterprises as well as local communities to create, circulate and use science to benefit society.

In order to fulfill these aims a large consortium of high-capacity cross-sectoral partnerships from five different partner countries from Germany, Portugal, Croatia, Cyprus, and Turkey will work together to create lighthouse events, SCPs, interactive career talks, local partnerships, and local public fairs. These partnerships consist of science researchers, science education researchers, and non-formal education providers, supported by schools, enterprises, start-ups and community institutions.

Through lighthouse events and school community projects (SCP), we will enable community members to learn and engage with science in real-life contexts. We will organize workshops, projects, round table discussions, or a school market for local consortium members and enterprises to run interdisciplinary workshops on real-life problems for community members and open schooling projects in schools.

We will organize face-to-face or online meetings where young people can interact with people from different sectors who can be role models for them in order to motivate them and increase their knowledge about science careers.

To support and develop local partnership and mentoring processes, we will organise local festivals, including SCPs, real-life problem-solving, career interactions or results obtained there.

2. Strategic Planning of Communication, Dissemination, and Exploitation activities

The main goal of communication and dissemination is to maximize opportunities to promote, communicate and disseminate activities and results throughout the lifetime of the ICSEfactory project and beyond.

The ICSEfactory consortium draws on a rich experience from the Horizon 2020 funded project MOST, which has helped to open up the school system to the issue of sustainability through the methods of Open Schooling and in running school community projects. In the ICSEfactory, we plan to further develop our links with out-of-school stakeholders and strengthen the community. The project's focus areas include sustainability, digitalisation, and health - all critical, socially relevant issues. By addressing these real-world challenges, the project demonstrates the practical importance of science, making it accessible and engaging for all citizens.

ICSEfactory brings together 109 partners with different sub-dimensions. These partners include higher education institutions, schools, enterprises, and community institutions. Each partner has its communication models and approaches for the individuals it addresses. Even for the communication of these communities with each other, various methods should be developed on a local basis. The strength of the ICSEfactory project is that it has a vast, diverse, and qualified consortium. This broad spectrum requires both richness and different strategies in terms of communication, dissemination, and exploitation. First, each consortium uses other communication methods and channels, e.g., enterprises use more professional and business communication models, while community organizations use more face-to-face and daily communication. Therefore, matching the right target audience with suitable communication models and tools is crucial when developing national plans. A partner working in the field of digitalization and technology has a different target audience and interaction style. In contrast, a community of science centers and museums has a diverse target audience and interaction style. It is essential to consider these differences when developing national strategy plans.

During the project process, each partner organisation will work on the adaptation, implementation and development of the national strategy plan within the scope of communication, dissemination and exploitation (CDE) under the coordination of the central responsible countries of higher education. In particular, each organisation should contribute to the development of the national plan considering its target audience's characteristics (age, socio-economic structure, cultural background, ability to use technology) and preferred communication channels. For this purpose, national plans will be prepared using the tools included in this plan. These national plans will also guide the revision of this initial plan and form the final plan's main structure.

The activities defined in the project will be used as scaling-up and exploitation by using them as a part of the CDE plan. For example, local festivals will be organised, publicised and attended by all segments of society (practitioners, entrepreneurs, policymakers, science builders, researchers, teachers, students, young children, families, older adults, and business people). They will be used as a critical CDE activity.

In addition, open schooling events and lighthouse events in schools will be organised and supported by all the teams that make up the project team.

The results of the studies will be presented at local and European levels through conferences, workshops, interactive presentations through the open schooling network, and face-to-face meetings with those who shape education policies or who can ensure the national use of the project results and products due to their position.

3. Communication And Dissemination Plan

Communication and dissemination activities are crucial to the project's success and, therefore, must be planned and carried out throughout the project's lifetime.

Communication activities aim to promote the agenda and results of the ICSEfactory project to gain more comprehensive visibility, inform and target different audiences, and keep partners included in the project's progress. One of the crucial gains of strategic communication (i.e. the planned and purposeful use of communication) is to turn outcomes into impact and to motivate stakeholders to use the ICSEfactory project's results in terms of project objectives.

Dissemination activities are targeted towards potential users of the project outcomes: fellow researchers, students, teachers, families and other relevant stakeholders, including the industry and policymakers. Dissemination is also about sharing project research results with the scientific community, thus contributing to advancing science in general.

Communication and dissemination activities are often intertwined and overlap in practical project management. All dissemination activities are part of project communication as the aim is to inform a wide array of target groups and stakeholders and promote concrete project outcomes.

The main goal of the project dissemination plan is to raise awareness and spread the news about the project's potential and to identify interested parties and stakeholders for the ICSEfactory results. The project-related information will be disseminated to the scientific community and the wider public.
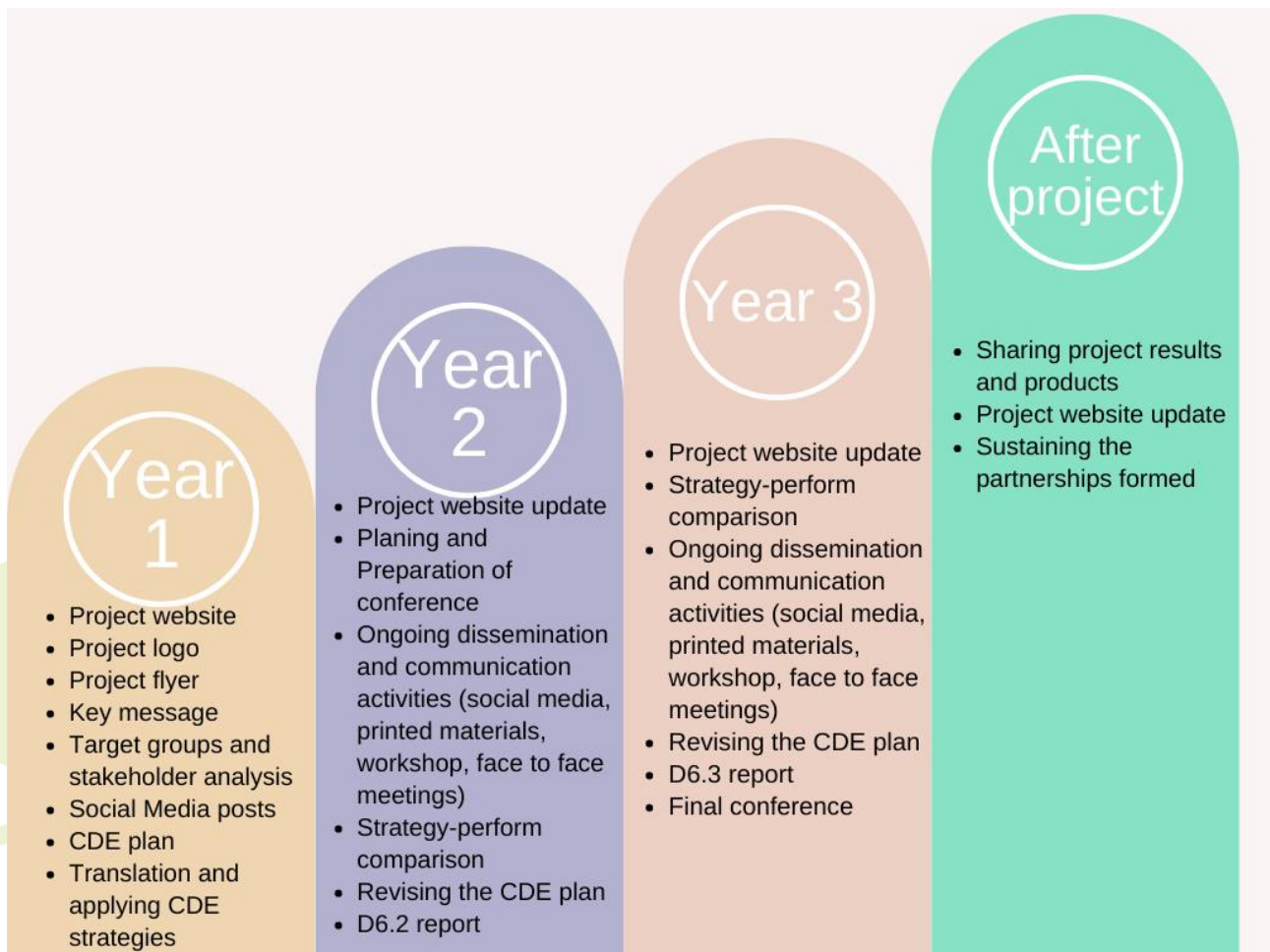
Figure 1. Dissemination activities plan during the ICSEfactory project lifetime.

3.1. Objectives

Dissemination and communication activities will be performed at multiple and different levels, and apart from the central effort that WP6 leader HU will coordinate, partner PHFR will also play a pivotal role, and all beneficiaries will contribute by using their own networks and dissemination channels. Dissemination and communication activities in ICSEfactory pursue five main objectives, namely to:

- To increase the awareness and interest of all members of society in science.
- The use of the interdisciplinary aspect of science to build and run a society that includes schools, businesses, community members, and scientists.
- Build awareness of the project activities and ensure the participation of the target groups (students, teachers, community members, stakeholders in science and science education, and parents).

- We are informing and encouraging young people about career opportunities in science.
- Promote, reflect, and raise awareness of the project initiatives and achievements, focusing on testimonials from beneficiaries and main stakeholders.

Effective dissemination and communication of findings are central to successful high-impact outcomes whenever the project involves multiple academic and non-academic partners and audiences.

The target groups, communication channels, and key messages specific to the groups in the project have been created by HU in this report, and these is the first version of the plan. It can be updated according to the feedback from partners, and different applications from national plans can be added (but these should be notified to the HU responsible for WP6).

3.2. Communication channels
The following communication channels to be utilised in the ICSEfactory project are briefly described.

Project website

Objectives: The website will be the central entry point to the project. It will inform the project's aims and activities and host project outcomes, learnings, deliverables, outcomes and publications.

Target groups: All target groups→ *Relevant timing*: Set up within 6 months and continuously updated

The ICSE Science Factory website will be set up as part of the well-known website of ICSE. It provides information about the project, all activities, the consortium members and everybody who might be interested in our work. You can also find short, easy-to-read field reports about the activities and events on the Science Factory website presenting the activities' content entertainingly to stimulate interest.

After the project ends, the website will be financially sustained by PHFR.

The project's website will be launched by the end of M8, and it will be maintained for at least five years following the end of the project. The website will be in English with information on the project, partners, activities, events, and outcomes. The prominent announcement will also be in all ICSEfactory project languages (German, Greek, Turkish, Croatian, Portuguese).

(Recommedation) Link to the website: https://icse.eu/international-projects/icse-factory/

Project partners website

The project partner's websites are used to disseminate information about the project and its main points. This channel will be the main dissemination channel until the project website is ready and launched.

Social media

Objectives: Social media is an integral part of promoting the project. However, different social media channels require different approaches and can be time-consuming for creating quality content. The focus should therefore be on 'more quality, less frequency'.

Target groups: All target groups

The use of social media contributes to establishing and maintaining public engagement with the project. Project partners will manage the project's LinkedIN, Facebook, Youtube, Instagram and Twitter accounts. ICSE will administer the Social media accounts as a coordinator. But every partner also has many social media accounts. The partner's local social media sites will also be used to spread the word if needed.

All target groups are listed below, depending on the specific channel (e.g. in our LinkedIn network, we target schools as well as the research and the broader STEM education community or other more significant actors like Scientix; via Instagram, we reach students and younger teachers, via Facebook and LinkedIn teachers). *Relevant timing*: Regularly.

On Twitter, we launch information about the progress of the project. On LinkedIn, our partners' extensive network is of high value for publishing our activities effectively within the relevant communities or groups (e.g. on science). Instagram Stories are easy to digest, and we use them to introduce the project to followers. To take advantage of the network size of all partners combined, we initiate a constant re-sharing of relevant posts. We use social media for different purposes, e.g.

- to attract community members of all ages, students, and teachers who participate in all our activities
- to post the outcomes of the activities (e.g. start a discussion about them on social media to raise interest in activities)
- to inspire schools to conduct open schooling activities themselves (especially on LinkedIn and Facebook)
- to cover a high number of people (society as a whole, stakeholders, particularly with Twitter and Instagram)

- to conduct small surveys on interesting topics for our target groups (e. g., topics for lighthouse activities)
- to draw attention to our actions, the consortium members regularly present their favourite science topics
- to accompany our activities journalistically on social media (e.g., an interview with participants of activities or offering a quiz with a prize during the fair and announcing the winner via Instagram)
- to advertise career talks, we post a brief introduction of speakers on Instagram, LinkedIn, Facebook and Twitter. Moreover, we will ask local and European networks and local newspapers to advertise our activities via their social media channels.

(Recommedation) Link to social media: As much as possible, refer to our social media accounts in your communications and add the hashtag #ICSE #ICSEfactory

Newsletters

Objectives: The newsletters aim to engage target groups and stakeholders in ICSEfactory activities by informing them of the project's progress. Newsletters generally generate traffic to the Project website by linking news items to the ICSE website. They, therefore, act as reminders of updates and attempt to re-capture the attention of target audiences and stakeholders.

A regular ICSE newsletter will help communication and dissemination with stakeholders and the ICSEfactory community. ICSE will publish the newsletter, but every partner country has to write at least two newsletters during the project time. The newsletter will be in English and translated into the project partners' language. It will be sent to identified experts and interested people subscribing to it through the project website, members/representatives of the media, etc. University of Freiburg and ICSE will be the newsletter's editors and will be responsible for the overall dissemination of the newsletter; all partners will contribute content and disseminate it in their own countries.

(Action) Writing a newsletter: As much as possible, capturing your local implications for the ICSE newsletter.

Local mass media in consortium countries

Regular press releases (at least one per year) will be issued at national levels, including essential project events and milestones. Press releases will be translated into national languages.

Print Materials

Objectives and target group: Community members who don't use social media; key actors in science and science education →

To reach community members via social media and print, we sent news releases to citizens' magazines and the local press.

We also invite them to first-hand report about our activities, interview community members (of all ages and gender), ask participants to write reports on real-life problem solutions etc.
In the course of the project, several print materials will be published:

- Project brochure (overall project description, aims, and other general info for general distribution
- Project poster and banner (comprehensive project description for conferences and other events)
- Booklet (in dissemination phase: engaging in open schooling, methods and case studies)
- White paper (in dissemination phase: policy recommendations for open schooling)

Conferences, Workshops and Seminars

Objectives: Conferences, seminars, and different multiplier events will be important in promoting the project and disseminating the research findings.

The selected project results will be presented at various conferences, seminars, and workshops targeting the scientific communities, teachers, and education professionals. These include major educational conference venues like the Partners give presentations at relevant (inter)national conferences and workshops, e.g. ESERA (European Science Education Research Association) conference, Congress of the European Society for Research in Mathematics Education (CERME), and the European Science on Stage Fair, but also conferences targeted to policymakers such as the European Education Summit. They all offer opportunities to set up symposia or discussion groups to multiply our results.

Networking in European online communities

Target groups: all target groups, depending on the community→*Relevant timing:* Regularly

We use different online communities for dissemination and communication purposes. We regularly announce activities via Scientix and upload our materials there (see 1.2), but we also use other communities, e.g. eTwinning and School Education.

Producing Scientific Publications

- *Target groups*: Science education researchers, teacher educators, policymakers
To support the establishment of open schooling and cross-sectoral partnerships and to ensure the exploitation of our results by these target groups, partners will also publish their results in prestigious journals, such as the *International Journal of Science Education*, *ZDM Mathematics Education* or *Journal of Research in Science Teaching*. The publication lists of HEI partners show that they have a long track record in doing so.

Local Public Fair

We will run public annual fairs to foster exchange between local project partners and communities and to extend our partnership. Partners present themselves, communities and partners their solutions found for real-life problems, and schools show their open schooling activities.

4. Key Messages Matrix

Due to the size of the group addressed by the project and the fact that it brings together many different partners, the structure given in *Figure 2* will be used to determine the messages. This 5-point structure will guide all consortium members in terms of message identification.

Problem	Need	Opportunity	Insight	HMW

Figure 2. General structure for the preparation of key messages

Table 1. Messaging Matrix defines messages and target groups in the project

Target Grup	Key Message 1	Key Message 2	Which communication channel can be used?
Schools, Teachers	Open classrooms to the world, bring the world into the classrooms.		Social media, flyers,
	All community members can trigger science.	Science is helpful in solving community problems.	
Secondary school pupils	Discover the opportunities and advantages of a career-related science.	Women and science fit perfectly together.	Social media, flyers,
Secondary school teachers	Equip your students with the proper knowledge and motivations for a bright career.	Shape the future of your country. Educate the game	Website

		changers of tomorrow.	
Educational Institutions	Support your students in exploring, testing, and embracing market-required jobs.	The future of jobs is challenging. Embrace the change and help your students succeed.	Newsletter, printed material, conference, publications
	Create cross-sectoral partnerships to foster networking and the sharing of research knowledge.	Jointly offer activities for community members of all ages to raise their interest and knowledge in science.	
	The policy should support cross-sectoral networking and knowledge exchange.	Communities should support the lifelong learning of community members.	
others			
(Please add more target groups)	*(Please add more key messages)*	*(Please add more key messages)*	*(Please add more options)*
.			
.			
.			

5. Communication, dissemination and exploitation activities and target groups

Due to the diverse nature of the ICSEfactory project community, different communication activities and channels, both electronic/online and face-to-face, will be utilised. Communication in and around ICSEfactory will happen at three levels:

- between partners (emails, face-to-face project meetings, online meetings)
- with stakeholders closely involved with the project (secondary school students and teachers, webinar participants, workshop participants, local partners, local public fair, interactive career talks etc.)
- public, decision and policymakers, education service providers, STEAM curricula, local partnership convention and extracurricular providers etc.

This three-level structure may also differ according to the project objectives. The project has three objectives, and the target group and the activities used to discuss. This difference is included in the description of action (DoA) and summarised in Table 2.

Table 2. Objectives and target groups' connection depends on DoA

Objectives	Target groups	Activity type	Specialities	
Objective 1: Providing collaborative science real-life learning opportunities for all citizens	• researchers, • non-formal education providers, • enterprises, • students • families • community members	• Lighthouse activities • Supported open schooling activities	Science labs as a stimulating learning environment for lighthouse activities	
Objective 2: Raising young people's interest in science careers (of all gender)	• Young people • Researchers • Representatives from enterprises	• Interactive career talks		• Encouraging Mentoring • Design research for quality assurance and evaluation of all ICSE Science Factory activities
Objective 3: Fostering networking and	• Teachers • Researchers	• Local partnership conventions		

sharing and applying research finding	• professionals across enterprises • community members	• Local public fairs		

5.1. Tasks for CDE in DoA

Task	Actions	Time	Role of participant
Task 6.1 – Development of dissemination, exploitation and communication plan	• We will identify important networks, persons and stakeholders of our target groups and detail our strategies for dissemination, communication, and exploitation. • HU will set up the draft of the dissemination, communication, and exploitation plan. • This draft plan will be presented during the first project meeting and will be refined according to feedback from all Consortium members (m6) → D6.1. • In month 8 and 33 we will compare our plan with our performance and rectify our proceeding/respectively the plan if deemed necessary	In month 8-33	HU will develop the plan. The country partners will be responsible for national dissemination, exploitation and communication.
Task 6.2 – Design and administration of the project website	• The website is the 'shop window' of the ICSE Science Factory and therefore very relevant for mission attainment. • The website content will be developed by HU in consultation with PHFR. PHFR will be responsible for the technical set up of the website. • HU will be responsible for collecting relevant content from partners and for regularly updating the website. Sections will be added to the website as needed in the course of the project. On a yearly basis, HU will also collect feedback from the attached partners	In month 8	HU and PHFR will be responsible. All partners will deliver content for the website. Guidance to the partners in this regard will be provided by HU.

	regarding the usability and functionality of the website. All partners will deliver content for the website.		
Task 6.3 – Design and production dissemination materials	• The dissemination materials comprise (1) a visual identity kit and (2) promotional texts and materials. (1) The kit comprises visual identity and acknowledgement rules for project logo, provides templates for project activities, e.g. dissemination reports; templates for presentations, posters and leaflets. PHFR will develop the visual identity kit. (2) Based on a brainstorming in the consortium, • HU will produce catchy advertising texts (for social media, newsletter, flyer etc.) to reach out to community members, teachers, schools, key actors in science and science education and to win participants for activities.	Project lifetime	Roles of HU and PHFR as described in action section. All partners brainstorm on the requirements of the visual kit and the catchy texts.
Task 6.4 – Ongoing dissemination, exploitation and communication activities	• Following the plan as set up in task 6.1, activities will be carried out by all Consortium partners on both local and European level.	Project lifetime	All partners responsible for communication, dissemination and exploitation on national level.
Task 6.5 – Prepare, announce and run the European ICSE Science Factory conference	• HU will set up a plan for the conference (months 10-15), prepare the conference (months 16-33), and run the conference (months 34-35). As the conference is a flagship event for the ICSE Science Factory and its partnership, all (full and attached) partners will be asked to take active roles in the conference (like presenting best practice examples of lighthouse activities, open schooling and	plan for the conference (months 10-15), prepare the conference (months 16-33), and run the conference	HU will responsible planning, preparing and running of the conference. All partners also support the conference.

	Interactive career talks and evaluation results). |(months 34-35).
•	• Based on a brainstorming in the consortium and in the local partnerships HU in consultation with PHFR will define the topic of the conference and set up an organisation and project plan for the conference. This plan includes, e.g., when the conference board needs to be set up, when the keynote speakers need to be invited, when the invitations need to be sent out, when the conference website needs to be online, what kind of submissions will be accepted (paper presentations, workshops, poster), when the submission of contributions is due, who reviews the submissions, how to collect feedback from participants etc.	
•	• Additionally, a preparatory workshop with the consortium will take place in month 24 and 30. The conference takes place in m35→M6.2	

5.2.   Target groups

Through our communication, dissemination, and exploitation activities, we seek to ensure a broad and sustainable dialogue with target groups and spread results within our partners' geographical key areas of impact and beyond. Our main target groups are: (1) community members in the partner regions, (2) students, (3) (future) teachers, and teacher educators, (4) media, (5) schools, (6) community institutions, (like lifelong learning institutions or town councils), (7) non-formal education providers, (8) enterprises, (9) key actors in science education (e.g. science researchers, large networks (such as the STEM coalition, EUN) and (10) policymakers in science education and in general (town councils, Ministries of Education or educational authorities, teacher unions).

In Table 3, communication, dissemination, and exploitation activities have been specified by target audiences and stakeholders identified within ICSEfactory. Most of the activities are carried out both on the local network and the EU levels, bearing in mind that local communication benefits from

more practical messages (updates on activities in local communities, info about available resources and tools in the local language, etc.).

The target groups given in Table 3 were created by using the group work examples given below in the first meeting of the project. These studies will be repeated during the project and the target groups and the appropriate messages will be updated.

Group Work: Activity – 1: You will be divided into subgroups. Please discuss the following questions in your group. Please choose one person to take notes about what is discussed. After the group work, please email this form to WP6 responsible partner.

Group members:

Detailed identification and analysis of stakeholders

1. Considering the nature of ICSE Science Factory project, who are the stakeholders (in national and European levels) and in what way their contribution to the project can be stimulated?

Stakeholders/Target Groups	In what way their contribution to the project can be stimulated?
Example: Pre-service secondary STEM teachers	Example: *Empowering them to improve the quality of STEM teaching. Showing them opportunities to enlarge their methods in teaching in STEM fields.*

2. What would be key message for the target group you chose?

Social media platform? (e.g., LinkedIn, Twitter, Facebook, Instagram)	[please complete]
Compose a meaningful and actionable statement (KEY MESSAGE) related to ICSE Science Factory	[please complete]
What would be a short statement in reference to the respected key message to be shared with a poster on social media?	[please complete]
What would be a visual representation in reference to the respected key message?	[please complete]

Table 3. Target groups focus on communication channels

Target audience	What to focus on?	Local or EU level?	Method/channel
Teachers and teacher educators	**In communication:** • The project goals, the scope of the activities, and the desired outcomes **During the dissemination phase:** • New insights into scientific literacy, sustainability education, and open schooling • Invitations to webinars • Access to quality-assured lessons and tools and guidance on their use	Local and EU level	• Newsletters • Project brochure & flyer • Project website • Social media • Publications • Conferences & presentations • Face-to-face meeting • Workshop/Webinars • Distribution via mail.
Schools, science education management	**In communication:** • The project goals, the scope of the activities, and the desired outcomes **During the dissemination phase:** • New insights into scientific literacy, sustainability education, and open schooling • Available policy paper on improved curriculum development and assessment of open schooling implementation **For Exploitation:** • Our collection of best practice examples from the lighthouse activities, career talks and reports on the local countries and the European evaluation	Local and EU level	• Newsletters • Project brochure • Project website • Publications • Conferences & presentations • analogue posters (e.g. for schools or senior citizens' homes). • Distribution via mail.

	results will inspire more communities to take such actions, and the European conference will present these results to a largely European audience.		
Students, parents, families	**In communication:** • The project goals, the scope of the activities, and the desired outcomes **During the dissemination phase:** • New insights into scientific literacy, sustainability education, and open schooling • Information on valuable tools for open schooling • Invitation to open local fair exhibitions • Invitation to career talks	Local and EU level	• Project brochure • Project website • Social media • Local/National media • Publications • Booklet • Local fair exhibitions
Local government, municipalities	**In communication:** • The project goals, the scope of the activities, and the desired outcomes **During the dissemination phase:** • New insights into scientific literacy, sustainability education, and open schooling • Available policy paper on benefits of open **Exploitation:** • Our objectives, as well as our concept and methodology, can be transferred to other	Local level	• Newsletters • Project brochure • Project website • Local fair exhibitions • Publications • Conferences & presentations • Policy paper

(non)-European regions and countries.

- Our collection of best practice examples from the lighthouse activities, career talks and reports on the local countries and the European evaluation results will inspire more communities to take up such activities, and the European conference will present these results to a largely European audience.
- All our activities can also be based on topics other than green deal, digitalisation and other subjects than sciences.

Universities, research centres, researchers	**In communication:**	EU level	
	- The project goals, the scope of the activities, and the desired outcomes		- Project brochure
	During the dissemination phase:		- Project website
	- New insights into scientific literacy, sustainability education, and open schooling		- Academic publications
	- Implementation and assessment of open schooling to inform		- Conferences & presentations
	- future research		- Policy paper
	Exploitation		- Newsletters
	- Our collection of best practice examples from the lighthouse activities, career talks and reports on the local countries and the European evaluation		

results will inspire more communities to take up such activities, and the European conference will present these results to a largely European audience.

- All our activities can also be based on topics other than green deal, digitalisation and other subjects than sciences. This transferability will also ensure exploitation.

National policymakers	In communication:	Local level	Newsletters

In communication:
- The project goals, the scope of the activities, and the desired outcomes

During the dissemination phase:
- New insights into scientific literacy, sustainability education, and open schooling
- Available policy paper on benefits of open schooling, curriculum design, and engaging schools in
- sustainability education

Exploitation:
- Our concept and methodology can be transferred to other (non)-European regions and countries.
- Best practice examples from the lighthouse activities, career talks and reports on the local countries and the

Local level
- Newsletters
- Project brochure
- Project website
- Publications (academic, popular & specialist)
- Conferences & presentations
- Policy paper
- Local public fair

	European evaluation results will inspire more communities to take up such activities, and the European conference presents these results to a primarily European audience. • All our activities can also be based on topics other than green deal, digitalisation and other subjects than sciences.		
EU policymakers	**In communication:** • The project goals, the scope of the activities, and the desired outcomes **During the dissemination phase:** • New insights into scientific literacy, sustainability education, and open schooling • Available policy paper on benefits of open schooling, curriculum design, and engaging schools in sustainability education	EU level	• Project brochure • Project website • Publications (academic, popular & specialist) • Conferences & presentations • Policy paper • Networking in European online communities
Industry, Small and Medium Enterprises (SMEs)	**In communication:** • The project goals, the scope of the activities, and the desired outcomes • encourage mentoring across the different groups involved in the partnerships to take full advantage of science, technology, research and innovation **During the dissemination phase:**	Local and EU level	• Newsletters • Project brochure • Project website • Social media • Local/National media • Publications (popular & specialist) • Booklet • Local public fair • Networking in European online communities

	• New insights into scientific literacy, sustainability education, and open schooling and partnership • Invitation to local public fair • Available booklet or policy paper on cooperation in • open schooling and its benefits		
Local communities	**In communication:** • The project goals, the scope of the activities, and the desired outcomes **During the dissemination phase:** • New insights into scientific literacy, sustainability education, and open schooling • Invitation to local public fair	Local level	• Project brochure • Project website • Social media • Local/National media • Publications (popular & specialist) • Local public fair

6. Management of Communication and Dissemination

6.1. Time management and responsibilities

All partners have jointly established the schedule, set realistic timescales for WPs, activities, meetings, milestones, and deliverables and aligned them to each other during proposal stage. During project duration, the coordinator will control the schedule to ensure efficient time management and if needed responsibilities. Partners will be strongly advised to communicate any (possibly upcoming) delays immediately. Options will be discussed between the affected partner and the Project Office, to adjust the schedule if necessary. Generally, the schedule and progress will be discussed during the project meetings.

The structural diagram in Figure 2 gives an overview of the project work and indicates connections between the WPs. It also presents the schedule for dissemination and communication.

WP1: Project management

WP 4 ICSE Science Factory cross-sectoral partnerships

Sustainability concept

Local Partnership conventions

WP2 Learning opportunities
Lighthouse activities   Supported open schooling

Public local Fairs

WP3 Interactive Career Talks

WP5 Evaluation and Quality assurance

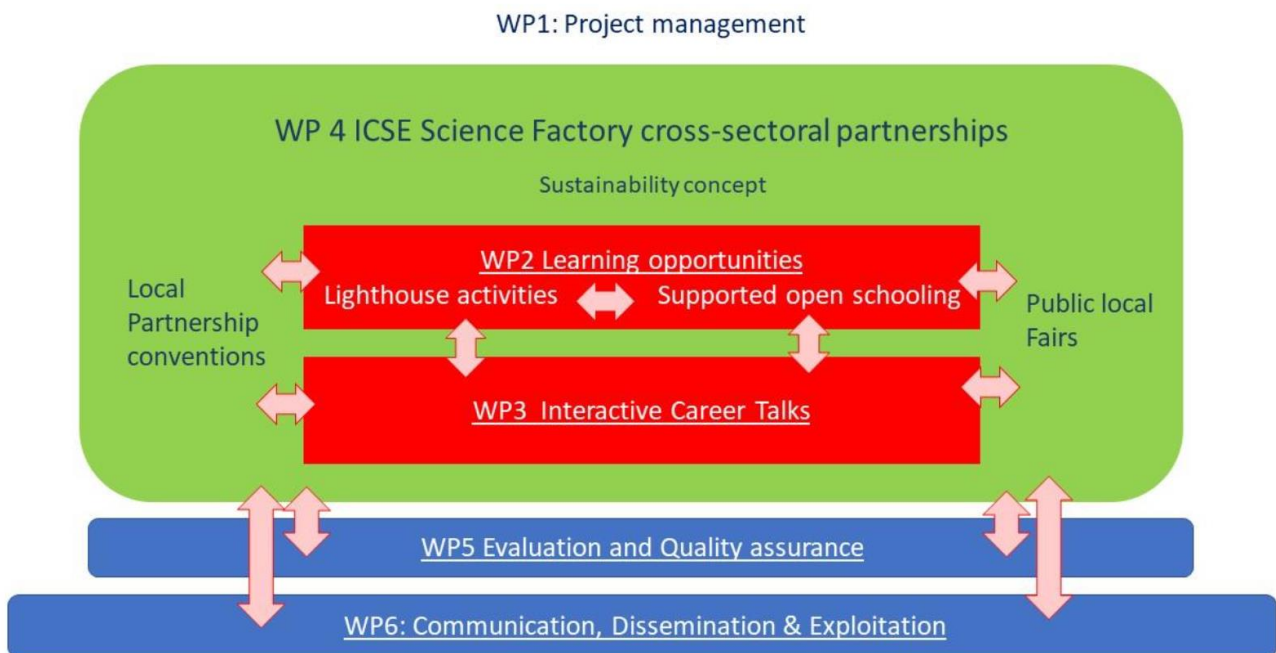**WP6: Communication, Dissemination & Exploitation**

Figure 3. Overview of WPs connection

Considering the WP6, all consortium partners will be involved in communication, dissemination and exploitation activities both national and European levels in different capacities. All partners are responsible for planning and executing their national and European dissemination plans and report accordingly.

Table 4. Overview of the tasks and deliverables

MS:	M 1-2 Jan 23	M 3-5 Mar 23	M 6-8 Jun 23	M 9-11 Sept 23	M 12-14 Dec 23	M 15-17 Mar 24	M 18-20 Jun 24	M 21-23 Sept 24	M 24-26 Dec 24	M 27-29 Mar 25	M 30-32 Jun 25	M 33-35 Sep 25	M 36-38 Dec 25
WP 1 Management PHFR	*MS1.1 PM**		D1.1 DMP	T1.2 PM		T1.2 PM	Update of DMP		T1.3 PM		T1.3 PM		T1.3 PM
	T1.1 General Administration, T1.2 Organisation of project meetings T1.3 Quality management, T1.4 Data management												
WP 2 Lighthouse activities and open schooling		**Design Phase** T2.1 Survey; Data collection and evaluation (m1-5) T2.2 Equipping Lab T2.3 Planning of lighthouse activities T2.4 Development: Service package for schools & strategies to win schools		**Piloting Phase** T2.3 Piloting & optimising Lighthouse activities T2.3 International best practice examples presentation (m14) T2.4 Winning schools for open schooling		***D2.1 Best practice collection lighthouse activities***	T2.1 New survey	T2.3 Implementation Lighthouse Activities	T2.4 Reflecting strategies on winning schools	T2.3 Optimisation and ongoing implementation of lighthouse activities T2.4 Ongoing timeslots for open schooling activities to provide activities sustainably.		D2.2 Final version of best practice collection	
ULIS								T2.4 Open schooling activities					
WP 3 Interactive Career Talks		**Design Phase** T3.1 Concept development with a particular attention to young women's needs, International exchange & Review		**Piloting Phase** T3.2 Career talks in partner countries best practice presentation (m14)		*M3.1* Best practice collection*						D3.1 Best practice collection	
UZA						T.3.3 Implementation of Interactive Career Talks (ICT)			T.3.3 Implementation of Interactive Career Talks (ICT)		T.3.3 Optimisation / ongoing implementation ICT		
WP 4 Sustainable cross-sectoral partnership				T4.1 First regional partner conventions: Presentation of partners, identifying possibilities for joint WS, Career talk, mentoring, research exchange.	**D4.1 Policy brief (PB)** T4.1 European Reflection of partner conventions and optimisation ***T4.2 Regional kick-off event for activities → M4.1****	T4.1 Second regional partner convention: Reflection of piloting, rectifying proceedings if needed T4.2 National concept for sustainability		T.4.2 European Workshop on sustainability & concept revision	T4.3 First Regional exchange fair & national reports	T4.1 Third regional partner convention: Sustainability of activities, research exchange Seeking for financial sustainability	European workshop on sustainability		**T4.3 2.** Regional fair, report D4.2 PB II D4.3 Report
PHFR													
WP 5 Evaluation		Development of Evaluation instruments		T5.1 Piloting instruments at piloting activities → if required optimisation of instruments & Framework → D5.1,		T5.2 Data collection in activities (WP2 – 4) Collecting questionnaires, doing interviews				T5.3 Country cases	*T5.3 Cross-country evaluation*	D5.2 Evaluation report	
EDEX										T5.3Data evaluation	Validation workshop		
WP 6 Comm & Diss & Exploit.		T6.1 C, D & E Plan → D6.1 T6.2 Website → *M6.1** T6.3 Material creation (such as logo, brochure, flyer, etc.)		T6.3 Texts	**D6.2 Report**	T6.5 Plan Conference	T6.1Strategy-perform. comparison	T6.3 Briefs, texts	T6.5 WS Conference		T6.5 WS Conference	T6.1Strategy-perform. comparison	**Confere nce → *M6.2**** D6.3 Report
HU													
	T6.4: Ongoing dissemination and communication activities of the consortium (till month 38) T6.2: Ongoing updating of the website T7.6 preparation of conference (from month 12 to 38)												
Ethics Requirements PHFR													

6.2 Scale, Monitoring and Impact

According to the ICSEfactory DoA with participant numbers as estimated in lighthouse activities and open schooling, outreach to 3850 persons in 5 countries by the end of the project. Incl. Exploitation by 4 further countries: Outreach to 10780 persons in 6 years, and in 10 years to about 15.000.

To evaluate outcome and success of all activities, WP5 will develop monitoring grid with performance indicators. All activities will be monitored and if needed necessary action will be taken in order to reach the set targets. Design research aims to find solutions for open questions and problems in complex, real contexts. Its main features are: (1) it is theory-based and (2) the context is central to its conceptual design (Kelly 2006). Therefore, we base the design of all activities on our theory-based European concept (educational concept for the lighthouse activities and open schooling, the idea for the career talks, and the concept of the CoPs, see above) but finetune all our activities in the local partnerships with a solid link to local contexts. When doing so, we will also use the expertise and creativity of the large European consortium. Most importantly, we will evaluate the impact of the activities on a European level to ensure exploitation in further countries. We will use the latest technology and data analysis techniques to ensure the highest quality results. We will also engage with stakeholders and local communities to ensure their voices are heard. Finally, we will provide the project's sustainability by developing a strategy for long-term success.

Design research takes place in iterative circles encompassing different evaluative elements. These cycles start from the initial design and then go through evaluation, optimising design, evaluation and so forth. Criteria for evaluation are: relevance (the intervention is relevant for the community); consistency (the intervention is logically designed); practicality (the intervention is usable in the settings for which it has been created); and intervention effectiveness (using the intervention results in the desired outcomes) (Nieveen 2007). The local partnership and the European consortium are vital in all these design, evaluation, and optimising cycles. Evaluation is, therefore, an essential part of the process to ensure that the intervention is effective and produces the desired results. This evaluation should be done collaboratively between the local partnership and the European consortium. The evaluation results can then be used to optimize the intervention further.

This concept ensures high-quality activities tailored to the local community needs by finetuning the activities on the local level. Also, it takes full advantage of the European level by including feedback from international partners and ensuring mutual learning through presentation and collection of best practice examples. This approach ensures that each local community can benefit from the expertise of the international partners while also allowing the international partners to learn from

the local communities. This mutual sharing of knowledge and resources helps to create a more harmonious and connected European community.

To make sure that quality assurance is implemented with the necessary thoroughness, all project work related to it is organized in a separate work package (WP5 –Evaluation and Quality assurance). Throughout the duration of the project, two quality cycles run: an internal quality cycle (planned activities are allocated to Consortium members) and an external quality cycle (planned activities are allocated to external experts.

- **Action:** Dissemination and communication progress will be continuously monitored. Tools, such as the one on annex 1 and annex 3, will be used to collect and track the activities performed as well as the individual interactions made by the project partners. The plan will be updated and improved when adaptations are required, with additional activities. Each partner needs to report their progress report related to dissemination and communication activities.

6.3. Rules of acknowledgement of EU funding and visual identity

- Throughout the lifetime of the project, the team will make available a range of attractive and recognisable promotion materials based on a common house style and in accordance with the objectives laid down in the description of work. To do so, all partners were informed about visual identity through the Grant Agreement. Each partner was recommended to use the same visual identity and following disclaimer in the project materials.

*ICSE Science Factory is f*unded by the European Union under *grant agreement No. 101093387*. Views and opinions expressed are however those of the author(s) *(name of the implementing partner)* only and do not necessarily reflect those of the European Union or the Agency. Neither the European Union nor the granting authority can be held responsible for them.

Action: A visual identity kit comprising e.g., project logos in various formats, templates with specified layouts (for e.g., newsletters, posters, internal documentation, etc.), and specified colour palette were provided to the partners.

Project logo - always to be used

a) Versions: png, pdf

This logo has the advantage of not only being an attractive and easily identifiable image but also of including a very clear explanation as to what the project is about.
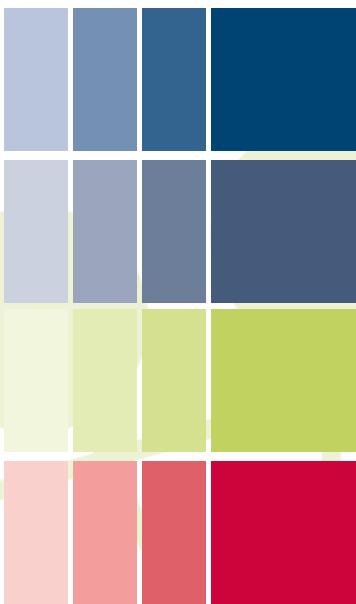
blue
CMYK: 100|50|0|50

grey
CMYK: 60|35|0|50

green
CMYK:30|0|75|10

red
CMYK: 0|100|60|15

25% 50% 75% 100%

Acknowledgement of EU funding: Any communication or publication related to the project, made by partners jointly or individually, including at conferences, seminars or in any information or promotional materials (such as brochures, leaflets, posters, presentations, etc.), shall indicate that the action has received funding from the Union and shall display the European Union flag.

EU flag

Creative Commons Licence Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)

https://creativecommons.org/licenses/by-nc-sa/4.0/

7. Internal Communication

Communication and information flow between partners is essential to achieve the project aims. Effective internal communication also fosters a feeling of unity and engagement. Project partners will communicate via the following channels.

7.1. Meetings (Face to face/Online)

The full partners will link the different local partnerships to an extensive European ICSE Science Factory Network, with six project meetings (three face-to-face, three online) being the continuous link between local associations and the project conference, being the flagship of the European network.

Zoom platform is the main communication channel for online project meetings. The platform is intended for file exchange, discussions, and quick chats, and it also features video or audio conferences. There are different 'teams' for each work package and management body of the project. A general 'team' includes the project documents and templates repository as well as crucial project information.

7.2. Sync & Share server

Thanks to the sharing area within the servers of the University of Education Freiburg, project products, developed materials, and collaborative work products between partners can be accessed instantly and synchronised. This sharing area is the central storage and sharing channel for all face-to-face or online meetings. The fact that this server is password protected and always accessible will provide an effective project management process.

8. Potential Risks and barrier and responses

Table 5. Potential risks and barriers during the lifetime of ICSEfactory

Risk/ Barriers	Responses
The planned dissemination and communication activities are not suitable for our target groups.	We have already started to seek contact with envisaged target groups (research and teaching staff from formal and non-formal providers and community representatives from our partners' networks, community institutions, schools, and students) during the planning process of our activities. Thus, we gained an idea of our target groups' preferred media.
Lack of willingness of specific external stakeholders to engage with ICSEfactory.	Leverage links between the partners and the stakeholders. We are building on the stakeholders' base already involved in the consortium and fab labs and citizen science.
We are not able to ensure the effective coordination of communication activities across the large and diverse consortium.	Intensive dialogue with the hubs and communication teams of the institutions. Clear communication and transparency on the tasks and internal management of expectations. Regular feedback among the partners to create positive dynamics.
The ICSE Science Factory conference doesn't attract an appropriate number of participants.	Registration for the conference will be online so that we will see at an early stage how the number of participants develops. If the number seems low, we will run additional advertising campaigns, ask for further networks to spread the information, etc.
The local hub communities don't provide input for the newsletter and the project website because of a lack of resources.	Clear guidance/support and reminders are sent to the national coordinators to ask for their input and inspiring stories. Local communities are proud of their achievements and are offered the possibility to tell their stories in an exciting format.

Due to force majeure, face-to-face meetings might not be possible all the time (m, l)	Based on other projects, we gained lots of experience with alternatives: online or hybrid versions of open schooling activities and meetings or support and mentoring through emails and video calls are possible. Also, online project meetings are always possible.

9. Reporting

All project partners are asked to carry out relevant communication and dissemination activities and keep track of them as they occur. All partners are obliged to document their communication and dissemination activities in regard to the continuous reporting within the funding & tenders opportunities portal. Partners are also required to send information about those activities three times a year to the WP6 leader, following a separate template made available through the BwSync&Share server. Reports on general project communication & dissemination activities and on communication and dissemination activities carried out in throughout the project lifetime.

The report template will ask for the following (annex 1, annex 2):

- Type of activity (item/event)
- Title of the item/event
- Date
- Location (if applicable)
- Audience numbers per target group and/or stakeholder
- Amount of project funding used for the activity
- Link to item/event/etc

Annexe 1: Template for reporting

The template for reporting aims to homogenise and facilitate the dissemination of reporting among all consortium members. Access to the reporting template is available via a link to the Google document shared with the consortium partners. Below is the screenshot of the document.

Organisation	Start date	End date	Type of activity	Short description (e.g	Size and target group							Link
					Formal eductors	Non formal informal educators	Policy makers	Researchers (from industry and academia and from the education sector);	Industries and civil society organisations	Students and their families	Broad public	

Annexe 2. Communication and dissemination action schedule partner country XXX

Activity name and action details	Activity Date (if applicable place)	Purpose / Target group**	Number of people reached	Evaluation/ Comments