

Deep!U

DELIVERABLE D6.4

First report on Dissemination and Exploitation including Communication

Lead Beneficiary: CNR

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Date: 29/03/2024

Dissemination Level

PU	Public, fully open	X
SEN	Sensitive - limited under the conditions of the Grant Agreement	
CI	EU classified - RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444	



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Document History

Version	Date	Authors	Description
1	19/08/2022	A. Manzella	First draft (D6.3)
2	29/08/2022	All partners	Review and comments
3	31/08/2022	A. Manzella and coauthors	Final document (D6.3)
4	31/03/2023	A. Manzella and coauthors	Updated document
5	28/03/2024	All partners	Review and comments
6	29/03/2024	A. Manzella and coauthors	Final document (D6.4)

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This publication was completed with the support of the European Innovation Council and SMEs Executive Agency (EISMEA) under the HORIZON-EIC-2021-PATHFINDEROPEN-01 programme.

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ABBREVIATIONS AND GLOSSARY OF ACRONYMS

Acronym	Extended definition
CA	Consortium Agreement
D	Deliverable
DCM	Dissemination and Communication Manager
D&C	Dissemination and Communication
EC	European Commission
EM	Exploitation Manager
EP	Exploitation Plan
GA	Grant Agreement
HE	Horizon Europe
IPR	Intellectual Property Rights
M	Month
PC	Project Coordinator
PDEC	Plan for Dissemination and Exploitation including Communication activities
SC	Steering Committee
VRE	Virtual Research Environment
WP	Work Package

EXECUTIVE SUMMARY

This report is based on the Plan for Dissemination and Exploitation including Communication activities (PDEC), a crucial report that Horizon Europe projects are required to submit to the EC. It has been issued for the DeepU project as Deliverable 6.3 at M6, and it summarises the strategy and concrete actions to disseminate, exploit, and protect the foreground generated by the DeepU project and communicate the project results. It also serves as a guideline to the Consortium for the Dissemination and Exploitation (D&E) activities to be carried out in the context of the DeepU project. DeepU PDEC is a guide for the project partners on promoting the project and maximising its impact using the promotion tools and dissemination channels. This document also indicates the roles and responsibilities of the partners and identifies the audience and the key messages that should be spread.

This document describes the dissemination activities foreseen at M6 and issued by M24. It summarises the most promising achievements, exploitable opportunities, identification of target segments for the DeepU project, and perspective business opportunities of involved enterprises. A revised and final version will be achieved at M36 for the Second Report on Dissemination and Exploitation, including Communication activities (Deliverable D6.5).

This public Deliverable will be made accessible through the DeepU project website. It shall be used by anybody who wants to know the activities undertaken to publicise the DeepU project and make it effective in terms of utilisation of results.

This Deliverable addresses the three key areas of dissemination, exploitation, and communication actions, which are reported separately. In addition to this executive summary, the Deliverable is structured into five chapters.

Chapter 1, Introduction, contains information about the document's scope and objectives and their links to the DeepU Project objectives.

Chapter 2 (**Dissemination Strategy**) describes the dissemination measures and activities that are planned and performed during the project's lifetime. The plan aims at making the project known at the European and international levels. Based on the plan, target groups for dissemination are identified, and the subjects and matters of these actions are described. The management, as well as the tools and activities, are defined, and the partner roles are shown. Cost-effective ways have been chosen to achieve maximum publicity for the project and its results, and indicators are identified to monitor the dissemination activities. The lists of events foreseen and those that have been participated in are included in Annex 1.

Chapter 3 (**Exploitation Strategy**) drafts the exploitation management. More detailed reports on Exploitation activities and IPR will be prepared jointly with the Work Package 5 activities dedicated to Exploitation planning and IPR management.

Chapter 4 (**Communication Strategy**) outlines the communication activities planned and carried out during the DeepU project and the chosen communication channels. The published communication documents are included in Annex 2.

Chapter 5 summarises Dissemination, communication tools, channels, and target groups.

1. INTRODUCTION

1.1 DeepU PROJECT IN A NUTSHELL

DeepU is a European-funded project dedicated to creating a deep (>4 km) closed-loop connection shaped like a U-tube exchanger by developing a fast and effective drilling technology. It has a time span of three years (March 2022-February 2025) and sees the participation of 7 partners from 4 countries, led by RED, Italy.

The disruptive technology envisioned in the “Deep U-tube heat exchanger breakthrough: combining laser and cryogenics gas for geothermal energy exploitation (DeepU)” Project is expected to revolutionise the deep geothermal energy sector. A laser drill head is combined with special drill strings sustaining the coupled action of laser and cryogenic gas, responsible for melting, vaporising, evaporating and cooling even the hardest rocks. The technical feasibility of DeepU is demonstrated at the laboratory scale, and the specific objectives of the Project are: (i) select a cryogenic gas able to cool in a controlled manner the rock melted by a laser; (ii) develop an innovative lightweight drill string able to host the gas and the laser at the same time; (iii) develop specific temperature control analysis and innovative laser lenses able to convey the heat and to sustain multilateral drilling, (iv) determine the physical-thermal phenomena affecting different kinds of rocks in order to assess the borehole wall vitrification and integrity. Numerical simulations calibrated by the laboratory data provide references to define the DeepU geothermal exploitation potential, including economic analyses. The legislative aspects and environmental standards related to the proposed solution are also assessed.

DEEPU Key Words: Laser and cryogenic drilling technology, drilling speed, vitrified/glazed borehole wall, borehole casing, deep heat exchanger, environmental assessment, regulation, numerical simulation.

1.2 CONTENT, SCOPE AND OBJECTIVES OF THIS DELIVERABLE

This Deliverable is the second of three deliverables regarding the Dissemination, Exploitation, and Communication Activities of the DeepU project. In the Plan for Dissemination, Exploitation, including Communication Activities (PDEC) presented in D6.3, we laid out and steered the project’s approach to disseminating and exploiting the project’s results, as well as communicating about the research with various audiences throughout the project lifespan. PDEC has been updated on the occasion of the First Interim Report (M12). This document presents the activities carried out in the first and second years (M24). In D6.5 (M36), the DeepU PDEC will be further elaborated and updated, considering the activities carried out in the Work Package 5 (WP5) frame dedicated to Exploitation planning and IPR management.

The **dissemination** activities are essential to inform project participants and other stakeholders of progress. They must also stimulate and gather feedback from interested groups and parties and increase the project’s international visibility. The main objective of the dissemination activities is to increase the visibility of the project on selected communities and target groups at the national, European and International levels and to support the realisation of the impacts. Special attention is given to contacting specific stakeholder groups to maximise impact.

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This deliverable outlines the DeepU dissemination strategy in terms of identification and description of the dissemination key elements:

- a. the objectives of the dissemination (mission, vision),
- b. the subjects of dissemination (what will be disseminated),
- c. the target audience (to whom it will be disseminated and who would be interested in learning about the project findings),
- d. the dissemination channels (how it will be disseminated),
- e. the monitoring (how much dissemination works)
- f. the timing (when dissemination will take place)
- g. the dissemination management and policy (who is responsible for and how dissemination is ruled).

The Consortium attaches great importance to dissemination. All partners contribute to that effort and strive to maximise the use of all existing dissemination channels, such as high-quality papers containing the best scientific achievements and oral and poster contributions to topical international and European conferences. In addition, the coordinator and industrial partners participate in workshops, fairs and showcases where technical achievements and prototypes can be shown to stakeholders. Gathering all exploitable outputs developed by DeepU within its lifespan will be crucial, defining the concrete use of research results for commercial, societal, and political purposes. The **Exploitation Plan** (EP) is designed to multiply the impact of the proposed solutions and prepare the transition towards industrial and commercial uptake to achieve the expected impact fully. The EP describes the activities to be undertaken (how and by whom) to ensure the exploitation beyond the project itself. The exploitation strategy must reflect and will be built up as a result of sound analysis of the market trends, potential users, and financial sustainability. The target users will be precisely identified and analysed regarding specific needs and objectives. Through the interaction with stakeholders, valuable feedback from those interested in the DeepU outputs, its exploitable results, and – mainly – future market products the developed technology will uncover will help complete the EP.

The **communication** aims to demonstrate how the DeepU project contributes to research and innovation, widens the applicability of geothermal installations and strengthens the European geothermal technology base. The communication strategy of the project has the following objectives:

- a. Raise awareness about co-creation and design among a broad segment of the public;
- b. Support the dissemination and exploitation of the results of DeepU;
- c. Provide a solid and common brand for the project, facilitating its recognition;
- d. Establish sustainable tools and structures for the project, including the different communication channels, printed materials, website and social media;
- e. Ensure the visibility of the project's events, activities and different actions.

The present document is intended mainly for the project partners. However, this report's dissemination level is public, and this communication strategy is open to involved stakeholders who can provide their free comments and suggestions. This public Deliverable will be made accessible through the DeepU project website. It shall be used by anybody who wants to know the activities undertaken to publicise the DeepU project and make it effective in terms of utilisation of results.

2. DISSEMINATION STRATEGY

2.1 OBJECTIVES

The overall aim of the Dissemination Strategy within DeepU PDEC is to identify and organise the activities to maximise the project's influence and promote commercial and other exploitation of the project results.

The objectives of dissemination activities are:

- To raise public awareness about the project, its expected results and progress within defined target groups using effective dissemination and communication channels and tools (see also Chapter 4);
- To exchange experience with projects and groups working in the field in order to join efforts, minimise duplication and maximise potential;
- To disseminate the fundamental knowledge, the methodologies and technologies developed during the project;
- To pave the way for a successful commercial and non-commercial exploitation of the project outcomes.

2.2 SUBJECTS

The following DeepU general subjects are being disseminated:

- interim and final results (reached objectives and achievements)
- techniques and methodologies (in respect of IPR issues)
- environmental, legal and regulatory aspects
- innovation aspects (in an “open innovation” perspective)

The technical aspects to be covered by dissemination include lab research and modelling on physical phenomena in rock melting and evaporation with a laser beam, quench cooling with cryogenic gas, materials characterisation of borehole walls and drilling residues, and modelling of deep heat exchangers. In addition, environmental and regulatory aspects of the proposed technologies will also be considered for dissemination and discussion.

2.3 TARGET AUDIENCE

One of the critical elements of the DeepU dissemination strategy is the identification of dissemination target areas and audiences.

2.3.1 Internal dissemination (within the DeepU partners)

Ensuring effective internal communication and dissemination among the Consortium partners represents an important key success element for the DeepU Project. Industrial partners are both potential users and “influencers” because of their impact on the associated industrial sectors, and academic partners are crucial for technical development.

Adequate knowledge sharing speeds up the project results and maximises the efforts. The internal dissemination strategy aims to keep all partners fully informed about planning, work in progress and existing or potential problems. Besides the requested EC and internal reporting, all partners are

invited to communicate with WP leaders about technical progress and issues actively. WP Leaders are also asked to keep the PC updated about the activities. Furthermore, all partners are invited to inform the PC of any administrative and legal issues that may arise. The PC is at the partners' disposal for any technical and administrative information/issues.

The Virtual Research Environment (VRE) technologies, a communication tool described in section 4.1.3, support data and information sharing among DeepU partners.

2.3.2 Dissemination beyond the DeepU Consortium (External dissemination)

Selecting target groups is crucial for defining the scope and characteristics of the "potential users" that dissemination activities are designed to reach. Table 1 lists the target groups identified for the Project.

Table 1: DeepU external audience

Type of audience	Definition and Motivation
Scientific and research community	This group targets all research communities interested in the DeepU project's developments, results and innovation, which can benefit their research activities. Scientific contributions of DeepU are particularly interesting for researchers working in the field of Deep Geothermal (e.g. those participating in EERA-JP Geothermal ¹) and those working in developing drilling technologies, laser techniques, material integrity, corrosion, and sub-surface geomechanics.
Industry and innovation community	Representatives of industry associations at regional, national and international levels to address and trigger the active involvement of industrial and user communities. They are expected to provide valuable feedback on the project, introduce challenging requirements to be considered and significantly impact the project's sustainable development.
International Standardization Bodies (ISB)	ISB should be aware of DeepU's scope and objectives, owing to the innovative character and eco-efficiency of the developed technologies. In an advanced project stage, ISB could be involved and provide consultative advice on pre-standardisation procedures, which may be carried out when the technology reaches a suitable readiness level.
Other EU projects	The project will also target other EU-funded projects in the same areas.

¹ European Energy Research Alliance – Joint Programme Geothermal, <https://www.eera-geothermal.eu>

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Policymakers	This comprehensive group encompasses local, regional, national and EU Authorities, Public Administrations and regulators. Representative groups are also included.
Technology and Professional Clusters/platforms/associations	This group targets sectorial/industrial international associations like ETIP-DG ² , EGEC ³ , IGA ⁴ , EFG ⁵ , IADC ⁶ , IWCF ⁷ , API ⁸ , SPE ⁹ Professional associations may act as essential influencers.
Civil Society/ Non-Governmental organisations	Including associations, foundations, cooperatives and networks that operate locally, nationally and internationally. They are a significant influencer in the application sought by the project.

DeepU Consortium has interesting and significant links with European and international activities. Some DeepU partners are members of international committees/boards of platforms, clusters and important symposia, which can ensure and facilitate the dissemination of DeepU results.

2.4 DISSEMINATION CHANNELS

Various DeepU dissemination channels are used and foreseen, and tools are tailored to the different target audiences, as described in Table 2.

Table 2: Dissemination tools foreseen in DeepU

Target audience	Tools
DeepU partners	Virtual Research Environment (VRE, see Section 4.1.3 for details)
Scientific and research community	Scientific publications Webinars and workshops Scientific conferences
Industry and innovation community	Webinars and workshops Research and Innovation Events Fairs and exhibitions Articles in national and international geothermal associations' newsletters

² European Technology & Innovation Platform on Deep Geothermal, <https://www.etip-dg.eu>

³ European Geothermal Energy Council, <https://www.egec.org>

⁴ International Geothermal Association, <https://www.lovegeothermal.org>

⁵ European Federation of Geologists, <https://eurogeologists.eu>

⁶ International Assoc. of Drilling Contractors

⁷ International Well Control Federation

⁸ American Petroleum Institute

⁹ Society Petroleum Engineers

International Standardization Bodies (ISB)	Face-to-face / existing networks
Other EU projects	Webinars and workshops Research and Innovation Events
Policymakers	Research and Innovation Events Face-to-face / existing networks
Technology and Professional Clusters/platforms/associations	Webinars and workshops Research and Innovation Events National and international geothermal association's newsletters
Civil Society/ Non-Governmental organisations	Face-to-face / existing networks

Annex 1 provides a list of DeepU webinars, workshops, and technical events, as well as a list of scientific conferences, fairs, and exhibitions attended or foreseen. The lists will be updated throughout the project.

All publications are being collected in a document on the project management system and summarised in tables.

2.5 EVALUATION OF DISSEMINATION IMPACT

At the start of the project, quantitative indicators were defined to monitor and evaluate the effects of the dissemination activities. Such methods are synthesised in Table 3, which also reports the achieved results.

Monitoring dissemination activities helps identify the potential risk of ineffective dissemination and reassess the dissemination strategy. This updated DeepU PDEC takes tracking data into account.

Table 3 Dissemination activities monitoring tools

Dissemination tools	Monitoring tools	Achieved Results
VRE	Number of shared technical documents	32 shared technical documents
Scientific publications	Number of submitted or published articles Downloads of publications	1 proceeding (World Geothermal Conference, WGC 2023) 6 abstracts in national and international events no downloads

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DeepU Webinars and workshops	Number of registered people	Not organised yet
Face-to-face meetings	Number of meetings Number of external participants	None reported
Scientific conferences, Research and Innovation Events	Number of attended conferences with presentations or posters Number of participants	6 conferences and workshops 1350 participants in total
Articles in national and international geothermal associations' newsletters	Number of articles Associations' members' number	None reported
Fairs and exhibitions	Number of attended fairs or exhibitions Number of visits and distributed brochures and flyers Number of post-event contacts List of contacts	1 fair (Offenburg, GeoTHERM expo & congress), 20 flyers distributed 20 contacts

All consortium partners have been encouraged, by email and during the project meetings, to share the dissemination material (papers, conference presentations, or the audio file of an interview, for example) on the VRE and to report the results of each dissemination activity immediately after they are presented. The reports include feedback gathered by the respective partner from the target audience (if applicable) and eventually gained contacts to be listed in the contact repository for further dissemination. The dissemination activities are checked at each project progress meeting.

2.6 TIMING

Although dissemination activities are carried out throughout the project, the most significant ones will occur as soon as the final research results are available. The main activity in the project's first two years has been communication to promote the project and its objectives. Still, preliminary results have also been disseminated in a few strategic events.

The dissemination activities are performed according to the logical schedule foreseen in the original plan (D6.3, M6):

- 1) Targeted dissemination phase (M6-M24): The consortium has attended selected events and presented preliminary project results to the target audiences.
- 2) Pre-launch phase (M25-M36): this represents the period closely before the end of the project when DeepU consortium partners will start preparing their own utilisation and business plans for the industrialisation of DeepU project outputs. This phase will be focused on informing the target audience of the DeepU exploitable outputs. Important dissemination themes in this phase will also be the references gained from the realisation of DeepU lab results.

Following this logic, a list of dissemination events has been defined (in Annex 1), considering the participated events, those foreseen to be organised by the project and the events of potential interest for the project partners based on the available information on international conferences.

2.7 DISSEMINATION MANAGEMENT AND POLICY

2.7.1 Responsibilities

According to Annex 5 of the EC-GA, “*The beneficiaries must disseminate their results as soon as feasible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests*”. They are also requested to “*use the EIC Market Place platform to exchange information on results (including preliminary findings)*”. In particular, the academic and research partners (CNR, UNIPD, FhG) are expected to publish **scientific articles** (about 12) in the professional literature (peer-reviewed, congress acts, scientific magazines, etc.). All partners will contribute to maximising the use of all existing dissemination tools, such as high-quality papers containing the best scientific achievements and oral and poster contributions to topical international and European conferences. In addition, industrial partners will regularly participate in workshops, fairs and showcases where technical achievements and prototypes can be shown to stakeholders.

Project partners are also requested to “ensure open access to peer-reviewed scientific publications relating to their results.” All partners are responsible for the open access publication of their scientific papers.

Moreover, “*the beneficiaries must provide and regularly update a plan for the exploitation and dissemination of results including communication activities*”. In this regard, CNR, which leads the WP6 dedicated to Dissemination and Communication, is responsible for providing and updating the Plan. All partners are responsible for checking and reviewing the documents.

CNR is responsible for organising webinars, workshops, and technical events in coordination with the PC and the Consortium. It will also manage the dissemination of DeepU results through the EIC Marketplace.

CNR will also be responsible for ensuring that the **open access** publications are stored following the rules set in Annex 5 of the GA, and in particular that:

“- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications

- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and

- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication,

publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication”.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms “European Union (EU)” and “European Innovation Council”;
- the name of the action, acronym and grant number;
- the publication date and length of the embargo period, if applicable, and
- a persistent identifier.

All DeepU partners are responsible for providing CNR with their dissemination products as soon as they are finalised to guarantee proper open access to them and provide all the necessary metadata information.

All partners are responsible for acknowledging EC and EIC funding in their dissemination documents, as stated in Deliverable 7.1. We recap here the general rule.

Acknowledgement

All publications or any other dissemination relating to foreground shall include the following statement to indicate that said foreground was generated with the assistance of financial support from the European Commission (according to GA, Article 17):

This research is funded by the European Union (G.A. 101046937).

Moreover, the following sentence has to be included in all publications:

The views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EISMEA. Neither the European Union nor the granting authority can be held responsible for them.

For infrastructure, equipment and major results, the following sentence has to be included:

“This [infrastructure][equipment][insert type of result] is part of a project that has received funding from the European Union under grant agreement No 101046937”.

For any communication document, including posters and presentations, it is compulsory to include the project logo (see Chapter 4), which is part of the branded templates provided to the partners.

The **primary contact** for Dissemination scopes is the **Dissemination and Communication Manager (DCM)**, Adele Manzella adele.manzella@igg.cnr.it.

2.7.2 Policy and Rules

Article 17 of the GA and art. 8.4 of CA, signed on February 9, 2022, governs the general dissemination rules. Dissemination activities shall be compatible with protecting intellectual property rights, confidentiality obligations, and the legitimate interests of the owner of the Foreground and/or Background.

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The dissemination strategy and activities will follow principles set in Annex 5 of the GA and the best practices successfully tested by the partners in other projects. Dissemination activities in the DeepU project are deeply wedded with intellectual property rights (IPR) protection. It is crucial to set up the dissemination rules and procedures to avoid any potential breach of any partner's IPR and to understand the difference between the interests of academia and industry partners of the DeepU project, the former inclined to publish all information they have at disposal and the latter deciding whether, when and where to publish depending on commercial considerations.

Following Annex 5, *“A beneficiary that intends to disseminate its results must give at least 15 days advance notice to the other beneficiaries (unless agreed otherwise), together with sufficient information on the results it will disseminate. Any other beneficiary may object within (unless agreed otherwise) 15 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests”.*

- Prior notice to any planned publication shall be given to the other beneficiaries 30 days before the publication, providing a copy of the planned publication. Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Scientific and Technical Coordinator and to any partner concerned within 30 days after the receipt of the planned publication.
- When submitted to a journal, the scientific publication must be sent to all partners, who have 15 days to check and send any objection to the authors, also informing the PC. The authors will be in charge of modifying the document to safeguard other partners' interests.
- A common graphic identity has been defined (see Section 4.1) to allow for better visibility, recognition, and branding of the DeepU project. Therefore, all dissemination products must rely on templates provided by DCM and the instructions detailed in Section 4.1.
- The research will be conducted following sound analysis and scientific practice principles, considering as many policy requirements and needs as possible.
- All consortium members contributing to the project activities will be duly informed about the final outcomes and the implications stemming from project results.
- All public results will be accessible from the project website and usable by all parties who may benefit from them. In addition, sensitive results will be accessible on the VRE by the partners authorised by the PC and the reference WP leader.

3. EXPLOITATION STRATEGY

In this report, we may only draft a strategy to multiply the impact of the proposed solutions for innovative drilling technologies and deep heat exchangers and prepare the transition towards industrial and commercial uptake to achieve the expected impact. The exploitation strategy will reflect and be built up as a result of a sound analysis of the market trends, potential users, and financial sustainability (WP5). Such activities started in month M19. The target users will be precisely identified and analysed in terms of specific needs and objectives. The exploitation activities will be coordinated by the **Exploitation Manager** (EM) in collaboration with the PC and the Steering Committee (SC). The EM is Luc Pockelé, a representative of RED, the WP5 leader.

The Exploitation Manager shall:

- a) Coordinate and implement exploitation activities;
- b) Propose IPR and exploitation strategies;
- c) Prepare the master plan for the exploitation;
- d) Prepare a list of industrial stakeholders;
- e) Contribute to proper exploitation of the results by helping industrial Partners to prepare adequate business plans and/or to get, if required, auxiliary funds for further industrialisation of products and processes;
- f) Monitor the use of resources for exploitation issues.

The EM must constantly be updated on the project's progress and the current IPR scenario in order to detect potentially exploitable results. An additional responsibility of the EM is to ensure that technological progress remains consistent with the industrial perspective and assist the PC in evaluating the project's impact from an industrial point of view.

The research data will be managed according to the Data Management Plan (D7.3 at M6), and exploitable results will be defined.

An **IPR strategy** will be developed to meet everybody's (i.e., researcher, SME, industry, and society) needs and expectations (Task 5.3). Furthermore, the Consortium, coordinated by the EM, will explore the possibilities offered by the European IP Helpdesk (https://intellectual-property-helpdesk.ec.europa.eu/index_en) to expand IP capacity building for DeepU technologies.

An infrastructure is created within the Consortium to tap into collective intelligence and bring it together during the project. In this regard, the Consortium will discuss the potential of the results collected and treated in WP5 to have an economic or commercial impact. When possible and appropriate within the IPR strategy, results should be patented.

No partner will exploit or disseminate any result emanating from the project unless it is properly protected and there is an agreement amongst all partners on the dissemination of this information. The framework for this agreement is addressed within the CA. Each partner will register their own background information there. Knowledge generated through the DeepU project, including research results, technologies, literature, know-how, etc., which are deemed to have commercial potential shall be protected by relevant IPR protection, including patents, trademarks, industrial design, copyrights, know-how as well as through a confidentiality agreement or any other agreements and contracts according to Horizon Europe (HE) rules. Protected IPR must be made available to the stakeholders participating in DeepU or a third party, including public and private sectors, through a licensing agreement or any other legal agreements and contracts complying with HE rules.

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EXPLOITATION, COMMUNICATION
ACTIVITIES**

Each member of the Consortium is responsible for the protection and exploitation of its own generated intellectual property. Where IPR is generated between two or more partners, the CA provides mechanisms for joint protection and exploitation. All partners collaborate in providing scientific results in accordance with the patents policy defined in the CA.

4. COMMUNICATION STRATEGY

Communication aims to raise awareness of the DeepU project's general scope, coverage, goals, plans to achieve them, and results. CNR is the lead partner of these activities and coordinates its actions with the PC and all the DeepU partners.

4.1 COMMUNICATION TOOLS

4.1.1 Brand identity

Branding is the process of creating a unique name and image through a consistent theme to support awareness about the project activities. It includes a logotype of the project, templates for printable reports (Deliverables) and presentations. The related files have been set and shared on the VRE and are part of the Communication KIT, available for free download from the Project Website.

The DeepU LOGO is



It will be used for any (internal or external) deliverable, report and dissemination tool.

The logo is also available in other formats that may be used on various media and occasions.

For example, another version of the DeepU LOGO is in two colours



4.1.2 Website

The website serves as a hub for all project-related information. To ensure maximum visibility of the DeepU objectives and results, the website has been registered in the "eu" domain and with an intuitive URL to increase hit rates: <https://www.deepu.eu>

CNR maintains the website, and the Webmaster regularly updates it upon input from the DCM and partners. The website includes tools to keep track of users and their geographical location, most visited pages, and other parameters. All partners have been asked to link to the DeepU website from their websites to improve it for Search Engine Optimization.

The website's structure has been defined according to the needs and focus of the projects. Its language is English, and it contains all the planned sections, including:

- a HOME page, which briefly introduces the DeepU project and provides relevant information. It also includes links to the digital version of the project leaflet and brochure;

- an ABOUT THE PROJECT page, with project objectives, a short profile of each of the DeepU Partners, and a link to their websites;
- a CONTACT page, which enables people to quickly get in touch with relevant contact people of the project Consortium and to be inserted in the DeepU list of contacts for further communication via the official email address info@deepu.eu;
- a VRE button for direct access to the VRE (see next section for details).
- a PROJECT OUTPUTS page containing public deliverables, open access scientific papers, public reports and articles, eNewsletter and videos, and press releases;
- Social Networks buttons for direct access to active social media (LinkedIn, YouTube – see section 4.1.5 for details).

The DeepU website also allows subscription to the Newsletter via the subscription form, which is addressed on the home page. Information about the Newsletters' content and structure can be found in paragraph 4.1.6.

Another section foreseen to be activated when the project starts publishing results and organising events is a NEWS&EVENTS page with the latest information related to the project, information (calendar) on DeepU events (meetings, workshops, Conferences, etc.), and upcoming events, conferences, and fairs where DeepU results will be disseminated.

The DeepU website now features an updated Privacy Policy regarding cookies, ensuring the protection of online privacy and enhancing the browsing experience.

The EU co-funding is duly acknowledged on all website pages.

The website will be continued for at least two years after the project ends, although the content will not be guaranteed to be updated.

4.1.3 Private Collaborative Platform, the VRE

The Virtual Research Environment (VRE) technologies, set up early in the project, guarantee internal communication among DeepU partners. The VRE is accessible to the registered partners from the project website. Through VRE, DeepU members can take advantage of modern collaboration facilities, such as social networking and a shared workspace. The Shared Workspace acts as a remote, redundant data repository (file system) able to store and organise data in different formats and sizes in a system of folders, shared or not among the community. The Platform also enables messaging among partners and news (e.g. when a new document is uploaded). VRE is an essential tool for both dissemination and communication activities and will be the base of data sharing among partners.

4.1.4 Print Media

Several print media are being developed throughout the course of the project.

The main objective of the project **leaflet and brochure** is to provide our audiences (technical and also non-specialists) with an attractive and written project overview and a summary of the main project objectives and characteristics. The text is designed to inform not only experts but also interested

DELIVERABLE D6.4

FIRST REPORT ON DISSEMINATION, EXPLOITATION, COMMUNICATION ACTIVITIES

non-specialists. The attractive and professionally made documents prepared by CNR are published on the project website to assist the dissemination effort. The first version of the leaflet and brochure presents the goals of the project and its objectives and includes the website address. The wider brochure expands the perspective by providing a view of the background stage, the innovative concept, and the principal (expected) findings.

Furthermore, it provides essential information on the DeepU Consortium. All partners' logos are also displayed. The documents have been updated when a new partner from Poland joined the Consortium. The documents have been translated into Italian and German and edited for communication at the national level (for example, in German for the Offenburg fair) using the master template created and managed by CNR. With the new partner from Poland, a Polish version is being prepared. The various versions are available on the project website and printed occasionally.

The final version of the brochure will be implemented in the final stage of the project, around April 2025 (M34). This version will contain updated content, an overview of the technical results, and a new layout to make it more attractive. It is designed for specialist audiences.

The leaflet and brochure are circulated in print, e.g., at conferences or other events. Their electronic version (PDF files) are distributed by email or on the media networks and downloaded from the project website.

A **poster for fairs and large conference booths** has been prepared and is updated in case of need. The primary purpose of the poster is to catch the audience's attention. Therefore, CNR takes care of its visual aspect while checking that its content is clear and easily understandable by the target end users. Concerning the layout and design, the poster shows the project's logo and the colours to emphasise the link to the project's graphic. From the content point of view, the poster illustrates the project's objectives and includes basic information, including preliminary results, if available, and on the Consortium, including all partners' logos.

A **business card** has been prepared, printed and circulated to partners. It includes the main project information (Coordination, website, contact email address, LinkedIn page, partners' logos and funding).

All the print documents are included in the Communication KIT and are accessible for download from the DeepU website. A summary of the documents' main details is provided in Table 4.

Table 4 Print media details

Document	Format	Diffusion	Printed copies	Due date
Leaflet	A4, three-fold	Physical events Face-to-face meetings Website Media channels and networks	300 (M9) + (M24)	M3 in its first version, continuousl y updated till M24
Preliminary Brochure	A3, two-fold	Physical events Face-to-face meetings	200 (M9) + (M24)	M3 in its first version, continuousl

		Website Media channels and networks		y updated till M24
Final Brochure	A3, two-fold	Physical events Face-to-face meetings Website Media channels and networks	Expected 300	M34
Poster	A0 or larger	Fairs Congress booths	3 (M6, M12, M16)	M6 in its first version, updated when needed. Expected a final version at M30
Business card	85x55 mm	Physical events Face-to-face meetings	100 printed in M24	M24

4.1.5 Social Media

In order to reach a broad target audience while establishing two-way communication channels, the presence of the DeepU project on social media is one of the key actions for dissemination activities. The channels are used to communicate the project's achievements and to present webinars and videos. DeepU has been registered in standard platforms:

LinkedIn: A LinkedIn group has been created (<https://www.linkedin.com/deepu-eu>) as one dissemination instrument for reaching stakeholders and industry professionals.

YouTube: To accompany the website and facilitate the publication of videos produced during the project, e.g., videos of related conferences or workshops, the CNR team has created a dedicated channel on the YouTube video platform. The channel, which will contain videos embedded into the DeepU project's main website, is publicly available at <https://www.youtube.com/channel/UCXGZLd6kkpwRm5Wut7kEPIg>.

<https://www.geoscienze.unipd.it/en/en/en/making-geothermal-energy-accessible-almost-anywhere-goal-deepu-project>

The website has direct access to these social networks by clicking on the icons situated on the website. This makes it easy for every user to participate when visiting the website.

These social media will be continued for at least two years after the project's end, although the content may not be updated.

4.1.6 News Media

4.1.6.1 Electronic Newsletter

DeepU news has been planned in the form of a Newsletter to be issued periodically. The original plan was to issue 5 Newsletters, starting in M14 (April 2023) and then twice per year, i.e. at months M19, M25, M31, and M36) to provide project-related news to the various stakeholder groups. The Newsletter is expected to contain meaningful content for professionals and assist in promoting the DeepU project. It is less focused on field experts but more on building a general understanding of the developed technology and goals. For detailed and complex project findings and information, the Newsletter refers to deliverables hosted on the website and other sources of information.

The Newsletters are disseminated via:

- links on social media
- direct emails to the DeepU list of contacts
- passive browsing on the Newsletter page of the DeepU website

The content is:

- Short
- Non-technical
- Engaging
- Set within a real-world context
- Colourful
- Enjoyable to read
- Easy to read on-screen

The Newsletters include announcements of the project's progress, dates, details, and comments regarding project-related conferences, meetings, events, or publications. Since they must treat the breadth of the DeepU project's subject matter fairly, each WP has a headline article slot. The Newsletters must also be opportunistic in tying into the project's results, generating newsworthy content throughout the project.

Subscription to this Newsletter is open to everyone using the active webpage button.

At the moment (M24), two Newsletters have been issued. Newsletter#1 (https://www.deepu.eu/wp-content/uploads/2023/05/Newsletter_n.1.pdf), released in May 2023 (M15), reported insights into various aspects of DeepU's progress and developments. The highlights included:

- DeepU Storyline
- What's New in DeepU
 - A Novel drilling system
 - Drilling tests: how are they working?
 - A review of the legislative and regulatory framework in Europe for DeepU
 - New partner on board

Newsletter#2 (https://www.deepu.eu/wp-content/uploads/2024/02/Newsletter_n.2.pdf), published in February 2024 (M24), continued to elucidate on DeepU's progress, with updates and developments:

- A new important partner and an updated project structure for DeepU
- DeepU storyline

- DeepU seen from a Legislative and Regulatory perspective
- Event snapshot

The two Newsletters are included in Annex 2.

4.1.6.2 Press releases

The press releases are planned to target a broad non-expert audience, such as citizens, students and local communities. They are meant to inform about the project milestones and main results and get press coverage of the project activities. They are drafted in English and translated when necessary.

Press releases are published strategically when significant achievements are made. They may include, e.g., information on DeepU events and interviews with experts. In addition, all press releases are archived on the DeepU project website.

The press contacts addressed by press releases are included in the DeepU contacts list.

After a preliminary press release at the national (Italian) level released on M2 and published in a local newspaper, one international press release was issued in May 2023 (M15) and circulated using different dissemination channels:

- DeepU Website Publication (<https://www.deepu.eu/index.php/optimising-access-to-deep-geothermal-resources-with-new-state-of-the-art-drilling-technologies-to-unleash-clean-abundant-energy-from-the-earth/>)
- Greenreport.it picked it up for an article in Italian language (<https://greenreport.it/news/economia-ecologica/a-che-punto-e-il-progetto-europeo-deepu-che-punta-a-rivoluzionare-le-perforazioni-in-geotermia/>)
- The University of Padua shared the press release (<https://www.geoscienze.unipd.it/optimising-access-deep-geothermal-resources-first-results-deepu-project>)
- EGEC circulated it on their Roundup News

The press releases are included in Annex 2 of this report, and the international one is published on the project website.

4.1.7 Other Media

4.1.7.1 Video

At least one video clip is planned, promoting the DeepU project goals and developed geothermal technologies, performed during the demonstration phase. In addition, a high-quality movie to present the main project results will also be shot toward the end of the project. The videos will be shown during the DeepU workshops and final conference and will support the technical D&C activities.

4.1.7.2 Outreach

Participation in outreach activities such as the European Night of Researchers is meant to target a broad non-expert audience, such as citizens, students, and local communities, and to inform about

the project milestones and main results. All partners are invited to promote and participate in such events in their countries. European events will also be sought and possibly organised.

DeepU has been presented on various outreach occasions:

- Poster illustration at Bo Live Event (M6);
- Poster illustration at the Centenary of the CNR, Viale dell'Energia Sostenibile (M16).

4.1.8 Communication KIT

It is available on the DeepU website and will be regularly updated when new documents (brochures, posters) are produced. It contains all branding documents (logo, deliverable template, presentation template), the leaflet, the brochure, the poster and the business card.

4.2 EVALUATION OF COMMUNICATION IMPACT

Table 5 lists the indicators to be used for monitoring and evaluation purposes. It contains the monitoring results achieved at M24.

Table 5 Communication activities monitoring tools

Dissemination tools	Monitoring tools	Achieved Results
Website	Number of visits Most viewed website pages Search terms and search engines leading to the website could also be checked and analysed	935 users 3746 number of pageviews, 42,3% homepage (Most viewed pages) 5 view search results
VRE	Individual participant activity monitoring (access, social interaction, posts and replies)	32 partners invited to join VRE 20 partners accepted invitations and are active on VRE (uploading and downloading files)
Leaflet and brochure	Number of reprints Downloads from the website	20 distributed at the WGC2023 20 flyers in German language distributed at Offenburg

		41 leaflet and 46 brochure downloads from deepu.eu
Social media	Media coverage Clicks, likes, new followers	LinkedIn: 116 page views; 55 visitors; 11 likes.
Newsletter	Subscription rate Readership rate Download from the website	Subscription: 19 Download newsletter#1: 47 Download newsletter#2: 7
Press releases	Number of articles Download from the website	1 press release Download: 1
Videos	Visualisations	Not available yet
Outreach	Number of attended outreach occasions at national and international levels	3 events (Bo Live Event in Padua, Event UGI in Pisa, Centenary of CNR in Padua)
Communication KIT	Downloads from the website	6

4.3 COMMUNICATION MANAGEMENT

4.3.1 Responsibilities

CNR is responsible for managing the website, VRE, social media, and eNewsletters and preparing branding and print materials, press releases, and videos. CNR coordinates with the PC to plan and monitor communication activities.

WP leaders are responsible for organising articles for the eNewsletters and press releases.

The **primary contact** for Communication scopes is the DCM Adele Manzella adele.manzella@igg.cnr.it.

5. OVERVIEW OF DISSEMINATION AND COMMUNICATION TOOLS AND TARGET AUDIENCE

Table 6 summarises how the different tools are distributed on the mentioned channels and the main stakeholder groups targeted by the D&C activities.

Table 6 DeepU dissemination tools, channels and target audience

Tools	Online/Digital	Media	Network	External Events	Target audience
Brand identity	x	x	x	x	Scientific community Industry&SME Public at large
Website	x	x	x		Scientific community Industry&SME Public at large
Print media (brochure, leaflet, poster)	x	x	x	x	Scientific community Industry&SME Public at large
eNews	x	x	x		Scientific community Industry&SME Public at large
Press releases	x	x			Industry&SME Public at large
Videos	x	x	x		Scientific community Industry&SME Public at large
Outreach				x	Public at large
DeepU Webinar, conferences	x		x		Scientific community Industry&SME
Scientific publications	x		x	x	Scientific community Industry&SME
General audience articles	x	x	x		Industry&SME Public at large
Participation in fairs, technical exhibitions				x	Industry&SME

6. ANALYSIS OF DISSEMINATION AND COMMUNICATION RESULTS

The project's first two years have experienced only preliminary interest in disseminating results. This is due mainly to the preliminary results achieved so far. Next year, an increased number of dissemination products is foreseen, mainly from research and academic partners.

Communication products have been in line with what was scheduled in the original plan, except for the number and type of organised webinars and events. The WP6 leader found it challenging to concentrate partners' attention on this activity since they were much more interested in carrying on the research and innovation and didn't see the advantage of organising such events. The events have been reduced in number, and a strategy has been defined; the organisation is now starting.

ANNEX 1

LIST OF EVENTS

Preliminary list of events to be organised by DeepU

Event	Location & Date	Type of event	Activities
Geological processes involved in non-contact drilling technologies	Online, June 2024	International webinar	Presentation of DeepU concept and results, consultation with target groups
Heat extraction and simulation (energy performance)	online, November 2024	International webinar	Presentation of DeepU concept and results, consultation with target groups
DeepU webinar on environmental and regulatory aspects	TBD	International webinar	Presentation of DeepU concept and results, consultation with target groups
Workshop on drilling technology to be organised in the frame of ETIP-DG	TBD	European workshop	Presentation of DeepU concept and results, consultation with target groups
Policymaker meetings	TBD, 2024, 2025	Face-to-face meetings at the national and European level	Presentation of results, consultation
Open-day on DeepU concept	TBD, 2024	Open-day at the national level	Visit to facilities, presentation of the concept
DeepU Final Conference	TBD, February 2025	Conference	Presentation of all project results to stakeholders

List of external events with DeepU participation

Event	Location & Date	Activities	Type of event
National event: UGI	Pisa, Italy, March 2023	Workshop	Abstract and Poster
ETIP Geothermal Webinar on drilling technologies	Online, April 2023	Webinar	Presentation of project concept and results
World Geothermal Congress 2023	Beijing, China, September 2023	Conference	Abstract, Proceeding, presentation
The Geoscience paradigm: resources, risk and future perspectives	Potenza, Italy, September 2023	Conference	Presentation of project concept and results
Geofluid	Piacenza, Italy, September 2023	Conference	Presentation of project concept and results
Energy trends 2023	Roma, Italy, November 2023	Conference	Abstract and presentation
GeoTHERM - expo & congress in Offenburg	Offenburg, Germany on February 2024	Trade fair	One-to-one meetings and distribution of print documents (brochure and leaflet)
ETIP Geothermal annual conference	Pisa, Italy, November 2023	Conference	Presentation

Preliminary list of external events with potential for DeepU participation

Event	Location & Date	Type of event	Activities
GRC congress	Hawaii US, 2024	Conference	Presentation of project concept and results
ETIP-DG meeting	TBD in 2024	Stakeholder networking meeting	Presentation of project concept and results Face-to-face meetings
EIC Innovation Bootcamp 2023, 2024	TBD 2024	Business Acceleration and Innovation Events	Exploitation design
Pitching events	TBD, 2024, 2025	Pitching events organised at the EU level	Presentation of concepts for market uptake
Stanford workshop	Stanford, US, 2025	Workshop	Presentation of project concept and results
GeoTHERM - expo & congress in Offenburg	Offenburg, Germany, on February 2025	Conference & Expo	Dissemination at booth stand, possibly a stakeholder event Face-to-face meetings

ANNEX 2

NEWSLETTERS AND PRESS RELEASE