LIQUIDICE

Deliverable 5.2 Dissemination, Communication and Exploitation plan – update

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Executive summary

This report pertains to the Deliverable D5.2: Dissemination, Communication and Exploitation plan – update, as described in ANNEX 1, part A (p. 32) of the EC/REA Grant Agreement for project number 101184962, "LIQUIDICE". Work Package 5 of the LIQUIDICE project is led by coordinator IG PAS with the support of CNR, FONDAZIONE CMCC, UCPH and GEUS. Other beneficiaries are also asked to contribute to the DCE strategy by reaching out to key people and organisations in each of their own countries.

This document outlines the update of the comprehensive strategy for dissemination, communication, and exploitation activities within the LIQUIDICE project. It provides a framework for effectively sharing project results with both the scientific community and policymakers, as well as engaging broader audiences through science communication based on the lessons learned from the first reporting period.

Dissemination activities focus on promoting scientific outputs and policy-relevant findings through targeted channels. The document contains information about the published papers and presentations of the project at conferences and workshops. It also details how the project will foster dissemination during the second reporting period and lists the events and conferences, where the Consortium members plan to present the project outcomes.

Clustering and networking activities conducted in the 1st reporting period are described in detail in the deliverable D5.5 *Connecting polar networks – 1st Report on networking activities* and will not be repeated in this document.

Information on KPIs achieved so far and a report on the impact of communication activities are provided in the subsequent section. As the project's visual identity (logo, templates, roll-up, info sheet) described in the deliverable D5.1 is still valid, there is no need for repetition. In the section dedicated to communication activities we describe open events and public outreach activities, media presence and press releases, as well as LIQUIDICE-specific activities (local workshops, children's opera and online lessons) and new opportunities from the collaboration between art and science. The fourth chapter of the document summarizes the project's online presence in the first reporting period.

The updates of the exploitation strategy are provided along with the results of the collaboration with the expert from EC Booster service, which helped identify and elaborate on the key exploitable results (KERs).

The document ends with the section dedicated to the findings and recommendations from the Horizon Results Booster Dissemination Support service, which provides expert assessment and tailored guidance to strengthen a project's dissemination strategy, with a focus on maximising impact and aligning communication with target audiences. Its analysis of LIQUIDICE highlighted strong scientific dissemination foundations but identified key challenges in reaching non-academic audiences and translating results into broader societal relevance. In the last section the main recommendations from the service are described along with the actions planned by the Consortium to implement them effectively.

1. Introduction

LIQUIDICE places a strong emphasis on dissemination, communication, and exploitation (DCE) in order to reach the widest possible audience and to maximise the impact of the project outcomes and results. The DCE activities have the common objectives to ensure wide and efficient communication, raise awareness of the project, its outcomes and importance in advancing climate change adaptation strategies for local communities, effectively implement two-way communication and engage societies affected by the observed changes, disseminate the high quality content of the project, and strengthen impact on stakeholder groups maximising synergies between dissemination and exploitation.

The LIQUIDICE dissemination, communication and exploitation activities continue to be implemented in line with the originally defined strategy (deliverable D5.1), timelines and KPIs, which remain largely on track and are being progressively achieved. The core dissemination and communication approach, including key messages, tools and channels, has proven effective and remains valid, ensuring consistency and continuity in project outreach.

At the same time, the project has benefited from the Horizon Results Booster Dissemination Support service, which has provided valuable insights and recommendations to further strengthen the impact of dissemination activities, particularly in reaching wider and non-academic audiences. Building on this support, this updated DCE plan introduces targeted refinements, particularly in stakeholder engagement, storytelling approaches and communication formats to enhance digital visibility and outreach beyond the scientific community, while preserving the overall strategic framework of the project.

The project benefited also from the Horizon Results Booster Go-to-Market support service, a tailored programme that helps Horizon Europe projects maximise the exploitation and impact of their Key Exploitable Results (KERs). Through expert coaching, the consortium is refining its KERs, assessing their market potential, identifying target users and market drivers, and strengthening the project's exploitation and commercialisation strategy to enhance the long-term uptake and sustainability of project results.

2. Dissemination: sharing results with scientific audience and policymakers

2.1 Goals and target audiences

The LIQUIDICE project is committed to effective dissemination to ensure that its findings reach and benefit a wide range of audiences. The primary goals of our dissemination efforts are to increase awareness of the impacts of climate change on inland ice, snow cover, and

permafrost, and to share the project's scientific progress, methodologies, and results with stakeholders across various sectors.

The target audiences as well as the key LIQUIDICE content and dissemination means and channels tailored for specific target audiences described in the deliverable D5.1 remain valid and therefore will not be repeated in this document. In case of the need to update or specify the more precise messages it may be done during the 2nd reporting period or in the deliverable D5.3 foreseen in month 36.

Below you will find information on the presentation of LIQUIDICE during various scientific events (conferences, symposia, workshops) and the list of scientific papers published during the 1st reporting period. Information on the networking and clustering events is provided in the deliverable D5.5 *Connecting polar networks – 1st Report on networking activities.*

2.2 Dissemination activities in the 1st reporting period

LIQUIDICE partners actively contributed to international scientific conferences and thematic workshops in the fields of glaciology, cryosphere modelling, hydrology, and climate change impacts. Between 2025 and 2026, more than 20 scientific presentations were delivered across major events such as the EGU General Assembly, Arctic Circle Assembly, Svalbard Science Conference, Forum Alpinum, and specialised workshops on Arctic glacier processes.

Key scientific dissemination activities included presentations on glacier mass balance, snow and ice modelling, permafrost dynamics, hydrothermal glacier structure, and cryosphere–hydrology interactions. Events such as the EGU General Assembly (2025–2026) featured multiple LIQUIDICE contributions addressing cryosphere processes and climate feedbacks. Additional high-profile presentations were delivered at the Svalbard Science Conference (Oslo), Arctic Circle Assembly (Reykjavík), and the IGS Nordic Branch Meeting (Copenhagen).

Overall, scientific dissemination reached audiences ranging from 20 to over 350 participants per event, primarily composed of researchers, higher education representatives, and international project consortia. These activities strengthened collaboration across European cryosphere research initiatives and supported integration of LIQUIDICE results into ongoing scientific frameworks.

Table 1. List of presentations of LIQUIDICE during various conferences within the 1st RP

Date	Event	Location	Presentation	Presenter(s)	Participants
Conferences					
30.04.2025	EGU General Assembly (CryoSCOPE–ICELINK–	Vienna, AT	LinkIng and QUantifying the Impacts of climate change on inlanD ICE, snow cover, and permafrost on water	Rodehacke C. (DMI)	20

Date	Event	Location	Presentation	Presenter(s)	Participants
Conferences					
	LIQUIDICE session)		resources and society in vulnerable regions		
01.05.2025	EGU General Assembly	Vienna, AT	Understanding Snowmelt Interaction with the Environment in a Changing Climate: Insights from a Small Coastal Mountainous Catchment in Svalbard	Rets E. (IG PAS)	50
04.09.2025	Cryospheric Ecosystems Conference	Poznań, PL	Shall we care about the Arctic snowpack?	Luks B. (IG PAS)	200
16.09.2025	Ocean:ICE Annual Meeting	Copenhagen, DK	LinkIng and Quantifying the Impacts of climate change on 7nland ICE, snow cover, and permafrost on water resources and society in vulnerable regions	Rodehacke C. (DMI)	50
13.09.2025	INARCH Workshop	Obergurgl, AT	Contrasting energy-balanced based snowmelt runoff estimates with isotopic hydrograph separation for a small arctic mountainous catchment in Svalbard	Rets E. (IG PAS)	25
16–17.10.2025	Arctic Circle Assembly	Reykjavík, IS	1. Changing Arctic systems: scientific insights and sustainable solutions 2. Legacy of Ice: Glaciological Studies of Hans and Werenskiold Glaciers in Hornsund, Svalbard	Cairns W.L. (CNR-ISP); Luks B. (IG PAS)	65 40
29.10.2025	Svalbard Science Conference	Oslo, NO	1. Svalbard's 2024 Record Summer: A Window into Future Arctic Glacier Meltdown? 2. Poster: The future of Arctic runoff: simulating Bayelva catchment 1991-2100 3. Poster: LIQUIDICE – SIOS success story	Schuler T.V. (UiO); Schmidt L.S. (UiO) B. Luks (IG PAS)	80 80 300
30.10.2025	IGS Nordic Branch Meeting	Copenhagen, DK	1. Three decades of Greenland ice sheet albedo data for LIQUIDICE 2. Democratic participation in the context of climate	Box J. (GEUS) Bjørst L.R. (UCPH)	50

Date	Event	Location	Presentation	Presenter(s)	Participants
Conferences					
			adaptation, and green energy transition in Kalaallit Nunaat 3. Investigating Greenland's wet future – the LIQUIDICE project	Ahlstrøm A. (GEUS)	
08.01.2026	IGS Nordic Branch Meeting	Copenhagen, DK	34 years of in-situ mass balance observations at the equilibrium line of the western Greenland ice sheet	Box J. (GEUS)	50
29.01.2026	Polar Night Week 2026	Longyearbyen, Svalbard, NO	LIQUIDICE from chapters in the SESS report to EU funding	Luks B. (IG PAS)	80
04.02.2026	SnowHydrology 2026	Jaca, ES	Assessment of Snow Depth in Fugleberget Catchment, Hornsund, Svalbard Using Terrestrial Laser Scanning and A-Melt Snowmelt Modeling	Luks B. (IG PAS)	350
03.03.2026	Arctic Circle Rome Forum 2026	Rome, IT	Strengthening interdisciplinary research collaboration: from Svalbard Snow Network to LIQUIDICE	Luks B. (IG PAS)	80
04.03.2026	ECSA Conference	Oulu, FI	A novel participatory framework for systemic climate risk assessment	Fasolino N.G. (CMCC)	60
04–07.05.2026	EGU General Assembly	Vienna, AT	1. A Comprehensive Snow Monitoring System to Detect the Impact of Rain-on-snow (ROS) at Ny-Ålesund, Svalbard; 2. Changes in permafrost distribution in the Hornsund Area (Svalbard) based on ERT surveys from 2010 – 2025 3. Detecting Cryosphere Signals in Runoff: Trends in Genetic Components in Norwegian Reference Streamflow and its Implication for Norwegian Hydropower Regulation	Scoto F. (CNR-ISP); Kondracka M. (USil) Rets, E. (IG PAS)	80–100 70 60

Date	Event	Location	Presentation	Presenter(s)	Participants
Conferences					
26–27.05.2026	Forum Alpinum	Aosta, IT	1. Framing effective adaptation practices: scientific frameworks, evidence, and transferability conditions; 2. The Monte Rosa case study within the LIQUIDICE Project	Fasolino N.G. (CMCC)	50

Table 3. List of the LIQUIDICE contributions during events other than conferences within the 1st RP

Other events (webinars, seminars, PhD courses, scientific meetings)					
Date	**Event**	**Location**	**Presentation**	**Presenter(s)**	**Participants**
14.10.2025	EC-Earth Consortium Meeting	Remote (DK)	Surface Mass Balance across Greenland, CISSEMBEL following the GrSMBMIP; Preliminary results	Rodehacke C. (DMI)	62
18.11.2025	Feria de Investigación ETSI de Telecomunicación-UPM Conecta	Madrid, ES	Exhibition to show to univerity students the work of the various research groups	Navarro F. (UPM)	1000
08.01.2026	Annual Greenland Meeting of Danish Researchers	Copenhagen, DK	CISSEMBEL and Greenland ice sheet modelling	Rodehacke C. (DMI)	55
26–28.01.2026	IASC-NAG Workshop	Obergurgl, AT	Modelling the evolution of the hydrothermal structure of polythermal glaciers in Svalbard	Navarro F. (UPM)	50
08.01.2026	Greenland Ice Sheet Seminar	Copenhagen, DK	Geodetic survey on historical strain networks	Box J. (GEUS)	40
26.02.2026	Webinar: Energy Security in the Arctic	Online	Understanding Energy Security in the Arctic (moderation)	Bjørst L.R. (UCPH)	80
08.04.2026	PhD course at Copenhagen Business School	Copenhagen, DE	The role of stakeholders as a regulatory force for sustainable	Bjørst L.R. (UCPH)	25

2.3 Scientific papers published in the 1st reporting period

Six peer-reviewed, open-access scientific papers were published in the 1st RP:

- Biscaro, E., Scoto, F., Larose, C., Barbaro, E., Burgay, F., Cappelletti, D., et al. (2026). Bromine enrichment signal in Svalbard shallow cores reflects changes of seasonal sea ice variability. *Geophysical Research Letters, 53*, e2025GL120091. https://doi.org/10.1029/2025GL120091
- Cao, W., Aalstad, K., Schmidt, L. S., Westermann, S., & Schuler, T. V. (2025). Bayesian data assimilation on an Arctic glacier: Learning from large ensemble twin experiments. *Journal of Glaciology, 71*, e121. https://doi.org/10.1017/jog.2025.10101
- Cyran, D., & Ignatiuk, D. (2026). Elevation-dependent glacier albedo modelling using machine learning and a multi-algorithm satellite approach in Svalbard. *Remote Sensing, 18*(1), 87. https://doi.org/10.3390/rs18010087
- Fausto, R. S., How, P., Vandecrux, B., Lund, M. C., Box, J. E., Mankoff, K. D., Andersen, S. B., van As, D., Bahbah, R., Citterio, M., Colgan, W., Jakobsgaard, H. T., Karlsson, N. B., Kjeldsen, K. K., Larsen, S. H., Olsen, C., Oraschewski, F. M., Rutishauser, A., Shields, C. L., Solgaard, A. M., Stevens, I. T., Svendsen, S. H., Langley, K., Messerli, A., Bjørk, A. A., Andersen, J. K., Abermann, J., Steiner, J., Prinz, R., Hynek, B., Lea, J. M., Brough, S., & Ahlstrøm, A. P. (2026). PROMICE | GC-NET automatic weather station data. *Earth System Science Data, 18*, 2829–2873. https://doi.org/10.5194/essd-18-2829-2026
- Kachniarz, K., Grabiec, M., Wróbel, K., et al. (2025). Glacier internal structure revealed by automatic image processing-powered classification of radar images. *Applied Geomatics, 17*, 677–692. https://doi.org/10.1007/s12518-025-00635-5
- Schuler, T. V., Benestad, R. E., Isaksen, K., Kierulf, H. P., Kohler, J., Moholdt, G., & Schmidt, L. S. (2025). Svalbard's 2024 record summer: An early view of Arctic glacier meltdown? *Proceedings of the National Academy of Sciences of the United States of America, 122*(34), e2503806122. https://doi.org/10.1073/pnas.2503806122

Additionally, one scientific book chapter was published and is currently under an 18-month embargo on self-publishing:

- Bjørst, L. R. (2026). Energy Security and Sovereignty in Kalaallit Nunaat (Greenland). I *Energy Security and Sovereignty in Kalaallit Nunaat (Greenland)* (Bind Routledge Handbook of Arctic Energy Transition, s. 122-132). Taylor & Francis. https://doi.org/10.4324/9781003488408-10

This publication will be made available in the project repository after the embargo period and subsequently will be reported in the next technical report.

2.4 Dissemination key performance indicators (KPIs)

During the first 17 months of the project, LIQUIDICE has made solid progress towards achieving its dissemination KPIs, with several indicators already reaching between one-third and nearly half of their targets. Notably, **6 open-access scientific publications** (40%) and **23 conference presentations** (115%) have been delivered, alongside **5 datasets** published under

early and open data sharing (71%) and active participation in **3 clustering events** (37.5%). Some KPIs are naturally planned for later stages of the project, such as the final conference and the policy brief, which are closely linked to the availability of consolidated results. The academic webinar series has only recently been launched, with 1 out of 8 planned sessions completed, reflecting a strategic decision to align these activities with the maturation of scientific outputs. This series will be organised on a quarterly basis and will increasingly include joint webinars with sister projects to maximise outreach and impact. The next session is planned for Autumn 2026. Bjørst (UCPH) will give a webinar with the title: "*Society, Ice, and Energy in Kalaallit Nunaat".*

The following table outlines the main dissemination means used in the project, along with their corresponding Key Performance Indicators (KPIs) planned and achieved in the 1st RP.

Table 3. Dissemination tools and KPIs planned and achieved in the 1st RP

Dissemination tool	KPIs planned	KPIs achieved in the 1st reporting period	Progress
Scientific publications	15 papers	6 papers	40%
Presentations at scientific conferences and events	20 presentations	23 presentations	115%
Academic webinars	8 trainings	1 training	12.5%
Clustering and networking events	8 events	3 events	37.5%
Final conference	60 participants	0	0%
Early and open data sharing	7 datasets	5 datasets	71%
Policy brief	1 document	0	0%

2.5 Dissemination activities planned in the 2nd reporting period

The planned dissemination of the project includes a series of international conferences and scientific meetings spanning 2026 and 2027, ensuring broad engagement across Arctic research, and interdisciplinary climate studies.

The **Arctic Circle Assembly** 2026 in Reykjavík, Iceland (8–10 October 2026, https://www.arcticcircle.org/), will host a dedicated sister project session, which will highlight collaborative frameworks between science, art, and policy in Arctic regions. Moreover, LIQUIDICE will be presented at the session "The Polish polar roadmap: Strategic synergy for the 5th IPY" organized by the Polish Polar Consortium; The Ministry of Foreign Affairs and the Ministry of Science and Higher Education, Poland.

Next, the **IGS Nordic Branch Meeting 2026** in Tromsø, Norway (28–30 October 2026, https://www.igsoc.org/event/igs-nordic-branch-meeting-2026), where we will present our work within the glaciological community, focusing on field-based observations and interdisciplinary approaches linking cryosphere research with visual methodologies.

The **Danish Climate Science Symposium** (October 27–28, 2026, Copenhagen, Denmark) is an annual conference that brings together climate researchers, stakeholders, and practitioners from Denmark, Greenland, and the Faroe Islands to share knowledge and foster collaboration. LIQUIDICE plans a scientific presentation at this two-day event which covers a range of themes from tipping points and compound events to climate science communication and adaptation.

In early 2027, the project is planned to be presented at the LIQUIDICE workshop held in India during the **XXII INQUA Congress** in Lucknow (28 January–3 February 2027, India, https://www.inquaindia2027.in/), offering an opportunity to connect Arctic cryospheric research with Himalayan climate studies.

At the **EGU General Assembly 2027** in Vienna, Austria (4–9 April 2027, https://egu27.eu/), we plan both: a presentation or poster (TBD) and a dedicated splinter meeting and sister project session, further strengthening interdisciplinary dialogue within the European geoscience community.

A major highlight for social scientists will be the **International Congress of Arctic Social Sciences (ICASS XI)** in Nuuk, Greenland (31 May–4 June 2027, https://iassa.org/icass-ix), where the project will contribute to discussions on Arctic change through the lens of science communication, cultural engagement, and societal impact.

The scientific outcomes from LIQUIDICE may also be presented at the **Svalbard Science Conference 2027** in Oslo, Norway (October 2027) and at the **International Symposium on Snow in a Warming Climate** organised by the International Glaciological Society (IGS) in Aomori, Japan (7-12 November 2027, https://www.igsoc.org/event/snow2027)

Together, these engagements will build a continuous platform for exchanging knowledge across disciplines and regions, reinforcing the project's aim to integrate scientific research with broader cultural and societal narratives on climate change.

Additional opportunities for dissemination of the LIQUIDICE results to scientific audiences will be identified and described in the deliverable D5.3 due in month 36.

3. Communication: science for citizens

3.1 Goals and target audiences

The communication strategy of the LIQUIDICE project is designed to raise awareness and foster understanding of how climate change affects inland ice, snow cover, permafrost, and water resources in vulnerable regions. Our aim is to make complex scientific concepts accessible and relevant to the broader public, while promoting active engagement with the project's mission and activities.

The main aims of the communication activities remain valid:

- to ensure visibility of the project and its effectiveness,
- to attract stakeholders to use project outcomes,
- to foster literacy on water resources challenges in the context of climate change,
- to inspire behavioural change towards more sustainable patterns and adaptation solutions.

In the deliverable D5.1 we identified five major Stakeholders Groups, and specified key content and communication means and channels tailored for specific audiences. They remain valid.
In the subsequent section 3.2 we described general communication activities, like open events and public outreach activities, media presence and press releases. In the section 3.3. targeted, project-specific communication activities are presented. The online presence of LIQUIDICE is described in one of the sections below. Here one may find description of the project-specific activities.

3.2. LIQUIDICE general communication activities

3.2.1 Open-events and public outreach activities where LIQUIDICE was presented

The LIQUIDICE project was actively presented at a series of national science communication and outreach events between September 2025 and June 2026. These activities targeted broad audiences, including families, students, and the general public and were designed to communicate polar research through interactive and immersive tools.

As part of the **2025 World Water Day** celebrations, the Institute of Geophysics, Polish Academy of Sciences organised in Warsaw, Poland a public conference highlighting the critical links between glaciers, climate change, and global water security. The event marked the release of the UNESCO World Water Development Report 2025, which focused on the vital role of glaciers in sustaining freshwater resources and the urgent need for improved monitoring and adaptation strategies. The event provided an excellent platform to present

the LIQUIDICE project, as Bartłomiej Luks participated in the panel discussion, and showcased how LIQUIDICE combines satellite observations, field measurements, and advanced modelling to improve understanding of glacier change and its impacts on water resources, and climate adaptation. The event gathered 85 participants (both in-person and online).

On 18.03.2025 on the occasion of the World Water Day Bartłomiej Luks was invited to an online presentation "Why do we need glacier monitoring?" at the scientific-technical conference organised by the local authorities in Gdańsk for stakeholders and professionals in the field of water management in Poland.

The first open-air event was the **Science Picnic "My City" in Warsaw, Poland** on **6 September 2025**, where the Institute of Geophysics, Polish Academy of Sciences hosted an outreach booth dedicated to polar science. Visitors could engage with a range of hands-on activities, including 360-degree virtual reality footage from Spitsbergen, a polar science quiz with prizes, and an educational magnetic game illustrating the transformation from snowflake to glacier ice. In addition, Bartłomiej Luks presented the LIQUIDICE project on stage, outlining its scientific goals and relevance. The event gathered approximately 900 participants, primarily Polish families and citizens.

The following outreach activity took place during the **European Research Night in Bologna, Italy on 26 September 2025**. LIQUIDICE was presented as part of a joint outreach booth featuring materials on polar research, live video connections with the Dirigibile Italia station, microscopes for ice and snow sample observations, and virtual reality headsets enabling immersive exploration of Arctic environments. The event was organized in collaboration with multiple research institutes and attracted over 2 000 visitors, providing high visibility for polar science within a broader European science communication framework.

Another event was the **Arktisk Festival (Arctic Festival) in Copenhagen, Denmark on 1 November 2025**, a science-oriented public festival focused on civil society engagement. LIQUIDICE contributed to the program through the presentation by Lill Rastad Bjørst from UCPH titled *"Vandkraft: Grønlands styrke i den grønne omstilling"*, highlighting Arctic hydrological processes and their relevance to the green transition. The presentation was delivered in a keynote format and reached an audience of approximately 120 participants, consisting of students, educators, and members of the interested public.

A further outreach activity took place during the **Climate Fiction Days in Italy (17–22 March 2026)**, an interdisciplinary cultural event exploring the intersection of climate science, storytelling, and speculative futures. During the event, Robert Salzano (CNR) presented narratives focused on climate change and glacier transformation, using storytelling approaches to make polar and cryosphere research more accessible to broader audiences. The LIQUIDICE project acted as a patron of the event, supporting its objectives of fostering dialogue between science, literature, and public imagination. Through this engagement,

LIQUIDICE contributed to expanding climate communication beyond traditional scientific formats, highlighting the role of narrative and creative expression in shaping understanding of ongoing environmental change.

The final outreach activity in the 1st RP was the **Polish Radio and Copernicus Science Centre Science Picnic in Warsaw, Poland on 13 June 2026**, recognized as Europe's largest outdoor science communication event. LIQUIDICE was presented at the booth of the Centre for Polar Studies, where two LIQUIDICE partners: University of Silesia and IG PAS were involved. The exhibit included immersive VR experiences with 360-degree video from glacier caves in Svalbard, interactive polar puzzles, and informal science engagement activities such as table football matches between visitors and researchers. The event emphasized informal dialogue between scientists and the public and contributed to broad dissemination of LIQUIDICE research themes to a nationwide audience. According to the information provided by the organisers, this year's Picnic was attended by 38,000 people.

Together, these events demonstrate a sustained outreach strategy for LIQUIDICE, combining immersive technologies, interactive learning tools, and direct engagement with researchers to communicate Arctic science to diverse public audiences across Europe.

3.2.2 Media presence

The LIQUIDICE project has maintained a strong and continuous presence in national and international media, including radio broadcasts, podcasts, videocasts, press interviews, and online articles. These activities have played a key role in raising public awareness of Arctic cryosphere change, glacier dynamics, and climate impacts in Svalbard.

Early outreach activities included two radio broadcasts in Poland in March 2025. On 8 March 2025, LIQUIDICE was featured in the program "Szanuj zieleń" ("Respect the greenery") on **Polish Radio 4**, hosted by Marta Hoppe, addressing environmental protection and the importance of green systems in a changing climate. Shortly after, on 11 March 2025, the project was presented in the science-oriented radio program **"Eureka" on Polish Radio 1**, hosted by Jakub Domaradzki, where topics related to climate research and polar processes were discussed with a broader public audience.

In December 2025, LIQUIDICE also appeared in the videocast series **"Leaders in Horizon",** produced by the National Contact Point (NCP) at the National Centre for Research and Development in Poland. The interview featured Bartłomiej Luks, who discussed the project's scientific objectives and its contribution to European polar research. The episode reached approximately 310 viewers, primarily from research and innovation communities.

Media engagement continued in February 2026 with a **Studio PAP interview** conducted by Agnieszka Kliks-Pudlik with Bartłomiej Luks for the Polish Press Agency (PAP). The

conversation focused on ongoing changes in the cryosphere and the scientific challenges addressed within LIQUIDICE. The interview reached a wide national audience, estimated in the several-thousand range, reflecting the strong dissemination capacity of the agency.

A particularly high-impact publication appeared on 14 May 2026 in **Gazeta Wyborcza**, one of Poland's leading newspapers, under the title "Spitsbergen pęka i nic już tego nie powstrzyma" ("Spitsbergen is cracking, and nothing will stop it anymore."). In this interview, Tomasz Ulanowski spoke with Bartłomiej Luks about rapid cryospheric changes in the Arctic and the scientific challenges faced by the LIQUIDICE project. The article reached an estimated audience of 30,000–80,000 readers, significantly increasing public visibility of Arctic research in Poland.

Further audiovisual outreach included the **"Pulsar" podcast/videocast** released on 15 May 2026, featuring Bartłomiej Luks and Agata Goździk discussing the unusually dynamic spring season in Svalbard and its implications for glacier processes.

On 4 June 2026, LIQUIDICE was featured in **a press note** issued by the CNR in Italian, based on an interview with Federico Scoto and the second LIQUIDICE press release from April 2026. The publication highlighted recent project results and broader implications of Arctic climate change. The story achieved a substantial online reach, estimated between 50,000 and 100,000 people, due to distribution through official press channels, social media, and news syndication networks.

Finally, on 13 June 2026, LIQUIDICE was featured in a live radio interview on **Polish Radio 2** (Zielona Dwójka), where Bartłomiej Luks discussed climate change, glacier retreat, and the scientific importance of the project. The broadcast reached an estimated 40,000 live listeners, making it one of the most widely heard media appearances of the project.

Overall, the LIQUIDICE media presence spans traditional radio, print journalism, institutional videocasts, and digital platforms, collectively reaching audiences ranging from specialized research communities to tens of thousands of members of the general public. This multi-channel communication strategy has been essential for translating complex cryosphere research into accessible narratives and strengthening the societal impact of the project.

3.2.3 Press releases

During the 1st reporting period, two press releases were published and distributed to national and European press agencies, contributing to raising awareness about the project and its objectives among wider audiences. The first press release, published on February 28, 2025, focuses on the official launch of the project and the successful kick-off meeting held in Warsaw, bringing together project partners and establishing the foundations for collaboration. It highlights the scale and ambition of the consortium, composed of multiple international research institutions working together to address the impacts of climate change

on snow, ice, and permafrost, and underlines the importance of integrating observations, modelling, and socio-economic perspectives. The press release also emphasises the expected outcomes of the project, particularly in supporting water resource management, hydropower, and climate adaptation strategies, while signalling the start of coordinated scientific work, stakeholder engagement, and dissemination activities.

The second press release, published on April 23, 2026, presents a compelling, real-time case study of the impacts of climate change on Arctic research, focusing on an exceptionally warm and unpredictable spring season in Svalbard. It describes how extreme conditions (characterised by a paradoxical combination of persistent sea ice blocking access and unusually high temperatures causing snow loss on land) have severely disrupted planned fieldwork, including preventing the Polish research team from accessing their study site and forcing Norwegian and Italian teams to adapt or abandon their campaigns.

Beyond reporting logistical challenges, the press release highlights the broader scientific and societal implications of these events, emphasising the rapid transformation of Arctic conditions, the increasing difficulty of conducting traditional field research, and the growing importance of remote sensing technologies such as satellites and drones. It frames these disruptions not as isolated anomalies but as evidence of a “new reality” in a rapidly warming Arctic, reinforcing the importance of the LIQUIDICE project in documenting these changes and improving understanding of their consequences for water resources, ecosystems, and climate adaptation.

These communications play a key role in raising awareness about the project’s relevance to climate science, water security, and international cooperation and help increase the project general visibility. Press releases are presented on the project website in the Library section.

1st LIQUIDICE press release: https://eu-liquidice.eu/?attachment_id=2614

2nd LIQUIDICE press release: https://eu-liquidice.eu/?attachment_id=2623

3.3 LIQUIDICE specific communication activities

In addition to its core outreach framework and online presence, LIQUIDICE has developed a set of targeted, project-specific activities aimed at engaging diverse audiences and fostering societal impact. These include interactive workshops for local stakeholders in some of the super-site locations, designed to facilitate dialogue and co-creation around water resources and climate adaptation challenges, as well as an innovative children’s opera that combines science and art to communicate complex climate issues in an accessible and emotionally engaging way. Complementing these initiatives, a series of online lessons has been introduced to reach schools and young audiences across participating countries and beyond, contributing to education, awareness raising, and long-term engagement with the next generation.

3.3.1. Local workshops

As part of LIQUIDICE commitment to public engagement and collaboration with local and Indigenous communities, several key outreach and co-creation activities are planned and underway.

On 14 June 2025, Lill Rastad Bjørst (WP4) participated in a high-profile panel debate at Folkemødet 2025 (Democracy Festival) in Bornholm, Denmark, alongside the head of the National Center for Climate Research (NCKF), a Greenlandic entrepreneur, and a historian, with support from the Queen Mary's Centre at the University of Copenhagen.

At Greenland Science Week Conference Nov 12-13, 2025 researcher Bjørst (UCPH) did a presentation with the title "*Advancing Greenland's Energy Sovereignty*". While in Nuuk she met with scholars from the HEU-project ICElink and had coffee meetings with stakeholders from NunaGreen and the water and energy company Nukissiorfiit. Thereafter she traveled to Ilulissat to do a scooping visit, contact local stakeholders and rightholders and stayed at the ILLU science and art hub in town.

February 2026, PostDoc Asta Mønsted (UCPH) started planning the WP4 and WP5 work in Kalaallit Nunaat formulating interview guides and consent forms in Danish and Kalaallitsut (M07). As preparation for the fieldwork and workshop in Ilulissat, Mønsted has worked on Milestone 08: "Document review pertaining impact of climate change on hydropower production in Greenland". It is a review of reports, policy documents, municipal planning material, and gray literature collected during the scooping visit. This review (M08) focuses on climate change impacts, hydropower development, and water resource management, and on their roles in the broader green transition of Kalaallit Nunaat. The findings of this review have stimulated conversations with other WPs. M08 will be the point of departures for subsequent stakeholder engagement activities, including interviews, listening sessions, and a stakeholder workshop in Ilulissat during the upcoming fieldwork in September 2026.

March-July (2026) Mønsted (UCPH) has been planning a workshop/stakeholder meeting in Ilulissat, Greenland (to be conducted in Sept. 2026), in collaboration with Avannaata Kommunia and Ilulissat Icefjord Center (Kangiata Illorsua). The workshop is designed to bring together local residents, stakeholders, municipal representatives, and other rights-holders to discuss their experiences and perspectives on living with the opportunities and challenges associated with climate change and hydropower development. When visiting Ilulissat, Mønsted will conduct individual interviews and listening sessions to gain a deeper understanding of local priorities, concerns, and aspirations regarding future energy and water infrastructure. A consent form and interview guide are currently being drafted and translated to Kalaallisut (cf. M07+M08).

In the Italian Alps CMCC actively engaged with local and regional stakeholders through participation in key Alpine-focused events. At the end of May 2026, CMCC took part in the Forum Alpinum in Aosta, an event that combined a scientific conference with a strong stakeholder component involving regional authorities, practitioners, and key actors from the Alpine area. Within this context, a presentation titled *"Framing effective adaptation practices: scientific frameworks, evidence, and transferability conditions"* was delivered, alongside a

poster showcasing the LIQUIDICE project and its relevance to climate adaptation and cryosphere research. During the same week, CMCC was also invited to a meeting linked to the Italian Presidency of the Alpine Convention, which provided an additional opportunity to present LIQUIDICE and initiate new contacts with both researchers and policy-relevant stakeholders.

Activities planned for the next reporting period

In Greenland: In spring 2027, Mønsted will do another fieldwork in Ilulissat and meet with stakeholders and rightholders. Finally, in early 2027, a webinar series and in-person event in Nuuk will be launched in cooperation with Nukissiorfiit, focusing on green transition potentials to support sustainable development in Greenland. In planning these activities, we will draw on UCPH's experience with stakeholder dialogue, workshop planning, and interaction with arctic policy makers.

In the Italian Alps: Although no specific engagement events are currently scheduled, further outreach and collaboration activities in the Alpine region are expected to continue in the coming year, strengthening the project's dialogue with regional actors and adaptation communities.

3.3.2. Children's Opera

The integration of art and science offers a powerful means to engage young audiences with pressing environmental issues through emotionally resonant storytelling. Piccolo Orso e la Montagna di Ghiaccio (Little bear and the Ice Mountain) is a lyrical opera for elementary and middle school students that unites scientific expertise and artistic creativity to portray the impact of human activity on a fragile mountain ecosystem. The Opera was prepared by the Associazione Lirica Como of the Como Theatre (https://aslico.org/) and their Opera Education Department (https://www.operaeducation.org/?lang=en) together with the Fenice Education department (https://education.teatrolafenice.it/), under the scientific direction of CNR ISP who guided the writer Giancarlo De Cataldo in preparation of the libretto (lyrics). The CNR ISP unit has been the scientific consultants together with WP5 team. The idea behind the opera is of a mountain under anthropogenic pressure (a tourist park represents overtourism) and as the opera progresses the ice starts to darken due to black carbon contamination. The final aria has the children and protagonists singing to produce magic that causes the mountain to return to how it was. The first performance was at the end of January 2026 at the Teatro Malibran in Venice. Other performances were then scheduled until mid-May in the rest of Italy. The opera was presented at the Opera Europa meeting and has been performed in Spanish in Granada, at the theatre of one of the co-producers.

The music that was composed by Giovanni Sollima was inspired by sounds provided by CNR ISP from the underwater sound pollution unit. The students that participated in the opera followed music lessons and a series of science lessons based on materials that were prepared. Around 620 teachers (science and music) came to the training events with LIQUIDICE personnel helping them instruct the children.

Based on these lessons, an extra 15 connections between schools and the Italian Dirigibile station at Ny Alesund took place where further depth was given to the lessons.

Table 4. Number of performances and total audience of the Piccolo Orso opera from January to May 2026 in Italy

***Piccolo Orso e la Montagna di ghiaccio* Jan-May 2026, tournèe Italy**	Total performances		Total Audience	
	For schools	For families	children	Trained teachers attending
	41	7	21000	620

More details on the teacher training and numbers of spectators and performances are provided in the **Annex 1**.

Materials produced:

Documentary: https://youtu.be/4BYBTY1I5rA?si=Sv-O7RNS8gtdQj51

Trailer: https://youtu.be/u-7SfS9JAX0

Entire performance filmed in January 2026:

https://www.youtube.com/watch?v=GJ62JvIuHVc

3.3.3. Online lessons

As part of the LIQUIDICE project, nine educational lessons were organized, including five sessions conducted in Polish and four in English, which attracted 2631 participants. The Polish-language lessons attracted particularly high engagement, with attendance reaching even 700–800 participants during some sessions.

The lesson topics were carefully aligned with important international environmental events and awareness days, such as World Water Day, World Glacier Day, Earth Day, World Environment Day, and National Greenland Day. This thematic approach helped increase audience interest and strengthened the educational impact of the activities. Additionally, two lessons conducted by female presenters were organised on the occasion of the International Day of Women and Girls in Science and Women's Day.

The table below presents the main information on the conducted online lessons, including the title, presenter, language, and number of participants.

Table 5. Online lessons organised in the 1st RP

Title	Presenter	Date	Language	Number of participants and countries

The Arctic – a canary in a coal mine for climate change (within the Science Festival)	Agata Goździk, IG PAS	22.09.2025	PL	437 PL
Unfrozen: who gets the water when the melt begins (on the Day of Women and Girls in Science)	Ekaterina Rets, IG PAS	11.02.2026	EN	97 SE, IS, PL, GR, LU
Women at the Edge of the World – Life and Work at a Polar Station in Spitsbergen (on International Women's Day)	Agata Goździk, IG PAS	06.03.2026	PL	127 PL
The Arctic – a canary in a coal mine for climate change (for Malapert Foundation)	Agata Goździk, IG PAS	19.03.2026	PL	21 PL
GLACIER WATER – Discover its superpowers! (on World Water Day & Glacier Day)	Elżbieta Łepkowska, UoS	23.03.2026	PL	696 PL
Climate change. Yes, another lesson on climate change (on World Water Day & Glacier Day)	Warren Raymond Lee Cairns, CNR	23.03.2026	EN	105 IT, PL, RO, RS, TW
The Cryosphere Under the Microscope: The Secrets of Ice on Earth Day	Agata Goździk, IG PAS	22.04.2026	PL	805 PL
Climate change, a problem that is not going away (on the World Environment Day)	Warren Raymond Lee Cairns, CNR	05.06.2026	EN	69 IT, LU, MK, PL, RO
Greenland (Kalaallit Nunaat) in a changing climate (on National Greenland Day)	Asta Mønsted, UCPH	22.06.2026	EN	343 CH, GR, PL

The recordings from the online lessons are available on the project website: https://eu-liquidice.eu/multimedia/

3.3.4. School competitions

School competitions will be organised for students from secondary schools in Poland and Italy (on national levels). The aim of the competitions will be to increase interest of students in climate change and Arctic regions, raise their awareness about specific environmental challenges which these regions face and what impacts may the climate change have on their lives. The specific rules and prices will be defined in the 2nd RP, whereas the competitions are foreseen for the 3rd RP.

3.4 Art meets science

Collaboration between art and science offers a powerful way to expand how knowledge is created, shared, and understood. While science generates precise data and models of the natural world, art translates these often-abstract findings into sensory, emotional, and experiential forms. Together, they open new pathways for communication, making complex processes more accessible without diminishing their depth or rigor.

This interdisciplinary exchange also fosters new modes of thinking. Artists working with scientists can reveal patterns, connections, and perspectives that might otherwise remain unnoticed, while scientific insights provide a grounding framework that enriches artistic experimentation. The result is not a simplification of science, but an amplification of its reach and resonance.

In the context of environmental change, this collaboration becomes especially significant. By merging empirical observation with visual and spatial storytelling, art and science together can make urgent issues, such as glacial melting or ecosystem loss, more tangible. This shared language has the potential not only to inform, but also to engage and mobilize broader audiences in response to global challenges.

Therefore, LIQUIDICE started collaboration with visual artist and documentary filmmaker Piotr Janowczyk from University of Warsaw and WIT Academy in Poland. His work focuses on large-scale interventions in natural and geological environments, as well as on creative practices within choreography and dance environments.

Our collaboration centers on his visit to one of the LIQUIDICE super-sites in Svalbard, where science and contemporary art converge in a shared exploration of fragile Arctic landscapes. Janowczyk, working closely with the international scientific consortium LIQUIDICE, translates complex geophysical data into immersive visual environments, transforming glacier dynamics into light-based narratives. During his expedition to the Polish Polar Station Hornsund in Spitsbergen, at the foot of the rapidly melting Hansbreen glacier, he developed a project that combines video mapping, ephemeral light projections, and scientific insight. These interventions do not simply illustrate data, but they create a dialogue between advanced research and the sensory experience of environmental change, revealing the urgency of climate transformation through perception and presence. Through this collaboration, art becomes more than interpretation: it becomes an active participant in scientific discourse and a resonant voice for endangered ecosystems.

As part of our ongoing collaboration, we are developing a series of public presentations and exhibitions that will further explore the intersection of science, art, and climate research. One of the already planned actions will be the artist's presentation on Sept 25 during the Festival of Science in Warsaw, where he will share insights from his work in Svalbard with a broad public audience. This event will focus on the experience of the Arctic field expedition, the transformation of geophysical data into visual language, and the role of immersive media in communicating environmental change.

Fig.1 Visualisation of Janowczyk's artwork from Svalbard

We are also preparing a multimedia exhibition scheduled for January at the Geological Museum in Warsaw. The exhibition will bring together artistic interpretations, scientific datasets, and visual documentation from the Arctic site, creating an immersive environment that reflects both the fragility and complexity of polar ecosystems.

Through this dual presentation format: public lecture and curated exhibition we aim to extend the dialogue between research and art, engaging diverse audiences in a shared reflection on climate processes and their global consequences.

3.5 Communication means and key performance indicators (KPIs)

The table below summarizes the key communication tools and associated key performance indicators (KPIs) used to evaluate their reach and effectiveness (planned and achieved in the 1st RP).

Table 6. Communication tools and KPIs planned and achieved in the 1st RP

Communication tools	KPIs planned	KPIs achieved in the 1st RP	Progress
Project website	>3000 visits	1702	57%
Project video	>1000 views	113 views	11%
Social media presence	2-3 posts per week	7 posts per week	278%

Open events	12 events >500 attendees	4 events 4020	33% 804%
Popular scientific publications	3-4 articles	2 press releases	50%
Workshops and seminars for local societies and SG	6 events	1	17%
School competitions	>100 attendees	0	0%
Art & science events	>3000 attendees	21,000	700%
360-degree videos	4 videos >500 views	1 video 200 views	25% 40%
Online lessons for schools	>30 lessons >1500 attendees	9 lessons 2631 attendees	30% 175%

4. LIQUIDICE online presence

As part of its comprehensive Dissemination, Communication, and Exploitation Plan, the LIQUIDICE project places strong emphasis on maintaining a dynamic and accessible online presence. This is achieved through its official website and a range of social media platforms, which together serve as vital tools for engaging stakeholders, sharing research outcomes, and raising awareness about the impacts of climate change on inland ice and water resources. The following sections provide an overview of the project website, as well as the social media channels leveraged to reach diverse audiences and foster public and scientific dialogue.

4.1 Project website

The LIQUIDICE project maintains a comprehensive online presence through its official website: eu-liquidice.eu. The website was launched in April 2025. This platform serves as a central hub for disseminating information, updates, and resources related to the project's objectives and activities. The website is organized into several key sections, which were described in detail in the deliverable D5.1. In March 2026 a new section “Multimedia” was added, which presents project videos, shorts, and recordings from webinar and online lessons. Additionally, due to organisation of various open events, lessons and webinars, a new section “Events” was added in May 2026. It presents the events organised by the project and includes description of each presentation, short bios of the speakers, as well as registration links (if applicable).

The LIQUIDICE website has been visited 1702 times since its launch in April 2025. It is regularly updated with news (19 items), deliverables, publications, datasets and other files in the “Library” section (16 items), as well as multimedia (25 items).

4.2 Social media

The LIQUIDICE project maintains an active and multifaceted social media presence to enhance its dissemination, communication, and exploitation efforts. The project engages with diverse audiences through the following social media platforms, which are fully operative since April 2025, partner institutions are encouraged to boost LIQUIDICE content by sharing to their own social media output:

4.2.1 LinkedIn

On LinkedIn, LIQUIDICE connects with professionals, researchers, and stakeholders in the fields of climate science, glaciology, and environmental policy. The platform is utilized to share updates on project milestones, publications, and events, fostering professional engagement and collaboration. The LIQUIDICE profile is available at: https://www.linkedin.com/company/liquidice/

Statistics: 124 posts, 821 followers

4.2.2. Bluesky

LIQUIDICE maintains a presence on Bluesky, a decentralized social network. This platform allows the project to reach audiences interested in open-source and decentralized technologies, sharing insights and developments related to climate change impacts on cryospheric elements. The LIQUIDICE profile is available at: https://bsky.app/profile/eu-liquidice.bsky.social

Statistics: 104 posts, 32 followers

4.2.3. Facebook

Through its Facebook page, LIQUIDICE engages with a broader public audience. The platform is used to disseminate news, educational content, and multimedia materials, aiming to raise awareness about the project's objectives and findings among the general public. The LIQUIDICE profile is available at: https://www.facebook.com/profile.php?id=61572282227883

Statistics: 124 posts, 167 followers

4.2.4. Instagram

LIQUIDICE's Instagram account showcases visual content, including photographs and short videos from fieldwork and research activities. This platform serves to visually communicate the project's work, highlighting the beauty and significance of the studied regions and the impacts of climate change. The LIQUIDICE profile is available at: https://www.instagram.com/eu_liquidice/

Statistics: 126 posts, 150 followers

4.2.5. YouTube

The project's YouTube playlist hosts video content such as project video, interviews with researchers, and recordings of online lessons and webinars. These videos provide in-depth insights into the project's research and findings, catering to audiences seeking comprehensive information. The LIQUIDICE playlist is available at: https://www.youtube.com/playlist?list=PLiWRn6uRXqilzrvRy2MJunpxaZMud-xho

Statistics: 30 videos, 1280 subscribers.

5. EC Booster Service on Dissemination (DIS)

5.1 Overview of the Dissemination Support Service

The LIQUIDICE project benefited from the **Horizon Results Booster – Dissemination Support (DIS) service**, aimed at strengthening the project's dissemination strategy and maximising the impact of its results. The service combines expert assessment, coaching, and tailored recommendations delivered through an iterative dialogue with the consortium.

The support focused on five main areas:

- Assessment of the existing dissemination plan**,** using contextual (e.g. project maturity, TRL, project type) and technical criteria (e.g. strategy, KPIs, stakeholder engagement).
- Strategic upgrade of dissemination activities, with emphasis on identifying key exploitable results (KERs) and aligning formats and messages with target audiences.
- Target audience identification and narrative development**,** ensuring communication is tailored to stakeholder needs and maximises awareness and uptake.
- Guidance on dissemination channels and formats**,** including digital tools, social media, multimedia content, and innovative approaches such as storytelling and visual communication.
- Advice on open access and long-term availability of results**,** as well as optimisation of the project's presence on EU platforms such as the Horizon Results Platform.

The service therefore provided a holistic review and enhancement of the Plan for Dissemination, Exploitation and Communication (PDEC)**,** with a clear focus on increasing the societal and policy impact of LIQUIDICE results.

5.2 Key Findings from the service

The DIS service identified several strengths and areas for improvement in LIQUIDICE dissemination activities.

Strengths:

- The project has **strong scientific dissemination foundations**, including a structured communication plan, active participation in scientific events, and high-quality research outputs.
- A **multi-channel communication approach and solid visual identity** are already in place, supported by defined KPIs and open access practices.

Key Challenges:

- Dissemination activities are **predominantly oriented towards academic audiences**, limiting broader societal reach.
- The project faces a **"communication bubble" effect**, with difficulties in engaging non-specialist audiences such as citizens, local stakeholders, and industry.
- There is a need for **more structured stakeholder engagement**, including better mapping and targeted interaction strategies.

Opportunities:

- The project has **unique assets for innovative communication**, notably the collaboration with artists and art–science initiatives, which can be leveraged for storytelling and emotional engagement.
- There is significant potential to **translate scientific outputs into societal relevance**, especially in areas such as water security, climate adaptation, and resilience.

Overall, the DIS assessment concluded that LIQUIDICE has a **high dissemination readiness** but must evolve from a science-driven approach towards a more impact-oriented, audience-centred communication strategy**.** Selected recommendation from the service and possible ways of implementing them in the LIQUIDICE project are presented in the final section of this document.

6. Exploitation strategy

6.1 EC Booster Go-to-Market service

In 2025, the LIQUIDICE project was selected to participate in the European Commission Booster Go-to-Market (G2M) support service, a tailored capacity-building programme designed to maximise the exploitation potential and long-term impact of Horizon Europe project results. The service provides hands-on expert coaching to help projects transform their research outputs into exploitable results with clear market, societal, or policy value. It supports consortia in increasing the maturity of their Key Exploitable Results (KERs) by developing robust exploitation strategies, assessing result maturity, analysing market

opportunities and drivers, identifying target users and stakeholders, evaluating risks, and defining pathways for commercialisation, uptake, or wider reuse. The programme also offers guidance on innovation management, business planning, financial considerations, and the development of go-to-market strategies.

Following a series of introductory meetings with the EC Booster expert, the Project Coordinator, and the WP5 Leader, LIQUIDICE was assigned to the Go-to-Market service and completed Module A (Kick-off). This module established a common understanding of the concepts of use, exploitation, and commercialisation, while reviewing and refining the project's Key Exploitable Results.

As the result of the work conducted in the Module A the Consortium identified the four most important KERs and prepared the exploitation intention tables for them, which are presented below.

Snow water equivalent dataset

KER name: SWE dataset	**Input from the Beneficiary**
Description	*Retrieval of Snow water equivalent using satellite borne L-band synthetic aperture radar data over hydropower catchments.*
Target market/ end users	*Target market: Energy market* *Customers: Hydrological services for hydropower companies, energy brokers needing accurate forecasts for the energy market, national water regulators, flood forecasting and climate monitoring services.*
Competitive advantages	*Current state of the art technology (i.e. hydrological models driven mainly by meteorological forecast has large uncertainties due to inaccurate forecast in regions with sparse monitoring). Satellite provides potentially a complete coverage.*
Use model	*Satellite data will be converted into gridded maps quantifying snow water equivalent over specific regions. These products may be transferred directly to the end-users, or be value added as assimilation in a hydrological model to provide forecast in addition to now-cast. Current hydropower producers tend to prefer doing their own forecast, but down-stream users such as energy brokers need more refined products that aggregate information on a wider scale.*
Partners	*NORCE*
Timing	*1-2 years depending on validation results in all types of conditions*
IP status	*Yes*

Fully coupled Earth system-ice sheet models

KER name: models	**Input from the Beneficiary**
Description	*Developing three new fully coupled Earth system-ice sheet models (AWI-ESM, EC-Earth, CMCC-ESM) in LIQUIDICE will significantly contribute to the corresponding Ice Sheet Model Intercomparison Project (ISMIP) group. It will lead to recommendations regarding ice sheet implementations in global ESMs. Ultimately, they will also deepen our understanding of the projected global mean sea level (GMSL) contribution from disintegrating ice sheets and the fate of the evolving cryosphere across various climate zones.*
Target market/ end users	*Adapters:* • *Focus group about coupled ice sheet-earth system models within the ISMIP community* • *CMIP (Climate Model Intercomparison Project) and the next IPCC report* • *Climate, Cryosphere, Sea-level, and Paleoclimate researchers* *Customers:* • *Environmental monitoring group* • *Governmental agencies responsible for the planning of coastal infrastructure, such as harbors and dikes* • *Researcher dedicated to uncover the still unknown climate-ice sheet interactions in the Earth's history (keyword: Paleo-Research)* *Beneficiaries:* • *Authors of the IPCC report* • *Interest groups working on various aspects of mitigation and adaptation in the framework of a changing climate system, including sea-level raise.*
Competitive advantages	*Only few groups worldwide having state-of-the-art coupled Earth system-ice sheet model systems, which included generally Greenland only. In contrast, we will also include Antarctica. It allows us to identify interactions between the ice sheets and its consequence on the global climate system. In LIQUIDICE's model systems, we use multilayer snow models essential to determine realistically the timing of massive mass losses initiated by a warming atmosphere, and some snow models will be confronted by LIQUIDICE's observations. Furthermore, LIQUIDICE will perform identical simulations by different model systems, which allows us to quantify uncertainties for the first time.*
Use model	*As LIQUIDICE, we will make a significant contribution to the international ISMIP activities, where modelling centers around the world will perform simulations following a strict protocol. Those activities will likely occur slight after LIQUIDICE's activities. It will enable scientists to compare our uncertainties in a broader context, to analyze numerous aspects of ice sheet-climate interaction, ranging from a changing timing of the warming driven by the ice sheet's interaction to the global sea level contributions from the ice sheets. It will spark research*

	improving our understanding of the related processes and will foster international CMIP activities leading to the IPCC report.
Partners	*1) ISMIP community* *2) CMIP activities and IPCC authors writing the report sections about a) future global warming projections, b) sea-level projections, and potentially c) paleo-climate groups.* *3) The European Earth system modelling community EC-Earth and their new flagship model EC-Earth (Version 4)*
Timing	*The work has different milestones, which have their own time to market, which also depend on the model system: 1) Release of the coupling framework for the EC-Earth model (D3.3, month 36), contribution of simulations to the ISMIP activities (due time is still under discussion, latest month 48)*
IP status	*Not yet*

Policy brief

KER name: Policy brief	**Input from the Beneficiary**
Description	*Policy Brief informed by local stakeholder and right holders pertaining to the energy landscape of Kalaallit Nunaat, Greenland* *It aims to support equitable, sustainable, and inclusive energy policy development by integrating local knowledge, governance priorities, and environmental considerations with regional and international policy objectives.*
Target market/ end users	*The primary audience for this policy brief includes decision-makers and organizations operating in:* • *Kalaallit Nunaat (Greenland)* • *The Kingdom of Denmark* • *The European Union* *Target Audience (Customers): The policy brief is intended for:* • *National and regional policymakers responsible for energy, climate, environment, and infrastructure.* • *Energy companies, utilities, and public agencies involved in renewable energy development, energy security, and infrastructure planning.* • *Think tanks and policy research organizations working on Arctic governance, sustainable development, and energy transition.* • *Municipal governments across Kalaallit Nunaat engaged in local energy planning and community development.* • *Academic institutions and researchers within the Social Sciences and Humanities (SSH) and Science, Technology, Engineering, Mathematics, and Environmental (STEEM) disciplines.*

	Primary Beneficiaries: The recommendations generated through this policy brief are expected to benefit: • *The Government of Greenland (Naalakkersuisut) through research-based policy development and strategic energy planning.* • *Municipalities across Kalaallit Nunaat by supporting locally appropriate and socially legitimate energy solutions and climate adaptation.* • *The European Union via strengthened cooperation on Arctic energy transition, climate resilience, and sustainable resource governance.* • *The European Environment Agency through improved understanding of Arctic environmental governance and community-informed energy transitions.* *Expected Value: The policy brief seeks to:* • *Incorporate Indigenous and local perspectives into energy policy and planning.* • *Inform just and sustainable energy transition strategies tailored to the Arctic context.* • *Strengthening collaboration among governments, researchers, industry, and communities.* • *Support researched-based decision-making that balances energy security, economic development, environmental stewardship, and Indigenous rights.* *Contribute to regional and international dialogue on sustainable energy governance in the Arctic.*
Competitive advantages	*Globally, electrical energy systems are often owned by private corporations with strong commercial interests, but in Kalaallit Nunaat there is only one energy company, Nukissiorfiit, which is publicly owned. This means that energy is still part of the "public purse" and can therefore easily be prioritized by democratic instruments and policies and thus support energy sovereignty in Greenland and for Greenland. In effect, the policy Brief can support a just green transition with a reorientation of investment, innovation policy and everyday practices.*
Use model	*The Policy Brief will be actively disseminated and used to inform policy development, stakeholder dialogue, and public engagement in Kalaallit Nunaat and at the European level. It will be presented at stakeholder meetings in Kalaallit Nunaat, seminars in Brussels, and other relevant policy and academic forums to maximize its reach and impact.* *The timing of the Policy Brief aligns with the European Union's strategic engagement in Greenland. Under the 2021–2027 Multiannual Indicative Programme (MIP) for Greenland, implemented through the Neighbourhood, Development and International Cooperation Instrument (NDICI–Global Europe), the EU has allocated €225 million to support Greenland's sustainable development, including a dedicated allocation for green growth. The Policy Brief will contribute evidence and locally grounded perspectives that are relevant to these ongoing and future investments in Greenland's energy transition.* *The Policy Brief will be used to:*

	• *Inform research-based decision-making by the Government of Greenland (Naalakkersuisut) and municipalities across Kalaallit Nunaat.* • *Support policy dialogue, stakeholder engagement, and outreach activities within the LIQUIDICE project by providing a common research base and set of policy recommendations.* • *Strengthen Greenland's knowledge infrastructure for the green transition by integrating local stakeholder and Indigenous rights holder perspectives into energy policy discussions.* • *Facilitate dialogue between Greenlandic, Danish, and European policymakers, researchers, and practitioners on sustainable and just energy transitions in the Arctic.* • *Serve as a lasting and accessible knowledge resource beyond the lifetime of the project.* *To maximize accessibility and uptake, the Policy Brief will be published in both print and digital formats. It will be produced in Greenlandic (Kalaallisut) and translated into Danish and English, ensuring that its findings and recommendations are accessible to local communities, national decision-makers, and international stakeholders.*
Partners	1. *Government of Greenland (Naalakkersuisut), municipalities in Kalaallit Nunaat.* 2. *Nukissiorfiit – Greenland's energy company* 3. *NunaGreen* 4. *National Center for Klimaforskning* 5. *Danish Industry* 6. *EU's Green growth cooperation* 7. *European Environmental Agency*
Timing	*Knowledge about the energy landscape of Kalaallit Nunaat has for decades been divorced from the local experience and social infrastructure. The policy brief will give a more holistic overview - but at the same time it speaks to the local context. Therefore, it is timely that the policy brief will be based and informed on both social science, natural science and local and Indigenous knowledges.*
IP status	*Not yet*

Open source software for SMB model

KER name: Software for SMB model	**Input from the Beneficiary**
Description	*LIQUIDICE is developing open-source software. CISSEMBEL is a versatile tool for computing the surface mass balance (SMB) model. On one hand, it facilitates the integration of ice sheets and potentially glaciers into global Earth System Models; on the other, it delivers SMB and runoff in its standalone setup. The enhanced*

	CryoGrid model, with glacier-evolution capabilities under development, will provide insights into the thermodynamics of glaciers. Ultimately, both tools will allow projecting the surface mass balance and seasonal runoff release patterns. The surface mass balance is essential to derive from satellite-based Earth Observations (EO) a more detailed view of the Greenland and Antarctica ice sheet, for instance; see the "Ice sheet Mass Balance Inter-comparison Exercise" (IMBIE) by NASA and ESA.
Target market/ end users	*Adopters:* • *Hydrology, glaciology and cryosphere researchers* • *Climate scientists and modellers* • *Semi-operational SMB computations across Greenland and Antarctica with our updated CISSEMBEL model on https://polarportal.dk/en* *Customers* • *Environmental monitoring agencies* • *Field expeditions on the Greenland ice sheet* • *Satellite groups with a focus on the Greenland and Antarctic ice sheets* *Beneficiaries:* • *Hydropower companies, power traders* • *Authors of the IPCC report section about the cryospheric state and sea-level contribution*
Competitive advantages	*Versatile models simulating the surface mass and energy balance across glacierized regions. CISSEMBEL will include the effects of debris cover, enabling applications in Alpine regions. Exclusive access to high-quality weather-forecast across Greenland. A network of collaborating partners in Greenland, e.g., GEUS, ASIAQ.*
Use model	*The knowledge of the surface mass balance (SMB) is essential for projecting the meltwater availability fueling river runoff. Besides this hydrological interest, the SMB is also essential for three applications: standalone ice sheet simulations, the semi-operational daily SMB forecast across Greenland and Antarctica, and the annual report about the SMB of Greenland and Antarctica within the IMBIE framework. Daily SMB forecasts are critical for researchers working on the Greenland ice sheet. It remains unclear if such a forecast will be of strategic interest in our politically changing world. The IMBIE SMB is essential to obtain a more detailed cryospheric state from satellite-based Earth Observation (EO). Ultimately, these standalone ice sheet simulations and enhanced EO allow to quantify the current ice sheet's sea-level contribution and to project future changes more reliably.*
Partners	*4) SMB forecast; Danish Meteorological Institute weather forecasters* *5) IMBIE community that is directed to the surface mass balance.* *6) CMIP activities and IPCC authors writing the report sections about a) the cryospheric state and b) sea-level projections*

Timing	*The work has different milestones, which have their own time to market, which also depend on the model system: 1) CryoGrid simulations (D3.6, month 42), 2) IMBIE Surface Mass Balance (D3.7, month 42). Outside of LIQUIDICE, we aim to semi-operationalize the SMB computation, publish them on https://polarportal.dk/en, and offer forecasts simulations as downloads.*
IP status	*Not yet*

The project is currently undertaking Module B (Unique Value Proposition & Key Exploitable Results) with the participation of the EC Booster expert, Project Coordinator, WP5 Leader, and KER leaders. Through a series of expert coaching sessions, a hands-on workshop conducted during the General Assembly (Feb, 2026, Venice, Italy) and own elaboration of the KER Leaders, the consortium has refined the definition and scope of its KERs and is now conducting market analysis to identify target users, market drivers, and exploitation opportunities. The outcomes of the Booster service will directly strengthen the project's exploitation strategy by validating the market potential of the KERs, supporting their future uptake, and enhancing the long-term impact and sustainability of LIQUIDICE results.

6.2 Further steps in exploitation

The Consortium will continue work on the Market canvas and Unique Value Proposition canvas for chosen KERs based on the training and guidance provided by the EC Booster expert. The results of this module will be presented in the deliverable D5.3 *Dissemination, Communication and Exploitation plan – 2nd update* in the form of Value Proposition canvas and Market canvas. The final exploitation document D5.8 *LIQUIDICE Roadmap* (M46) will include guidance material and inform how to use project results to ensure their legacy. The final strategy will ensure that the exploitable results are made available, documented and disseminated to the research community.

7. Conclusions and next steps

The DIS service has provided LIQUIDICE with a clear roadmap to enhance dissemination impact, confirming the robustness of the existing strategy while identifying key areas for improvement. The LIQUIDICE activities foreseen in the 2nd RP will integrate these recommendations by prioritising:

- broader stakeholder engagement,
- stronger societal storytelling,
- diversified communication formats, and
- enhanced digital and media outreach.

Together, these measures will ensure that LIQUIDICE moves from strong scientific dissemination towards maximising societal, policy, and economic impact of its results. Based

on the DIS report, the following recommendations were identified as the most relevant for LIQUIDICE, together with concrete implementation actions integrated into this updated DCE plan.

I. Strengthen Stakeholder Engagement and Targeting

Recommendation: Develop a more structured stakeholder mapping and engagement strategy, focusing on priority groups such as policymakers, local communities, and industry.

Implementation in LIQUIDICE:

- Creation of a dynamic stakeholder database including categorisation (players, subjects, context setters).
- Organisation of targeted engagement actions, e.g. workshops with hydropower stakeholders, policy roundtables, and local community events in pilot regions.
- Active participation in EU-level networks and communities (e.g. Climate Adaptation Mission platforms, Water Europe).

II. Shift from Output-Based to Impact-Driven Communication

Recommendation: Move from purely scientific dissemination towards communication highlighting societal relevance and real-world impact.

Implementation in LIQUIDICE:

- Development of a narrative framework ("Why it matters") linking project results with societal challenges (e.g. water availability, climate risks).
- Translation of scientific outputs into societal relevance
- Publishing a success story at the EC portal (to be implemented with the support of the Project Officer at the later stage of the project).

III. Diversify Communication Formats and Storytelling

Recommendation: Use audience-oriented formats and storytelling approaches to reach non-scientific audiences.

Implementation in LIQUIDICE:

- Launch of thematic content series such as:
  - *"Postcards from the Super-Sites"* (visual storytelling from case-study regions)
  - *"Glacier Lab"* (behind-the-scenes scientific work)
  - *"Blue Gold"* (linking research to everyday water use)
- Expansion of multimedia outputs: short videos, infographics, social media content, podcasts.
- Continued exploitation of art-science collaborations (e.g. performances, exhibitions, creative media content).

IV. Improve Digital Visibility and Outreach

Recommendation: Enhance online presence through SEO, regular content publishing, and cross-promotion.

Implementation in LIQUIDICE:

- Website optimisation (SEO, structured content, regular updates).
- Strengthened social media strategy, including coordinated posting across partners.
- Introduction of a Quarterly Dissemination Kit for partners (ready-to-use posts, visuals, and messages).
- Increased use of cross-promotion via partner channels and clustering initiatives**.**

V. Expand Outreach Beyond the Scientific Community

Recommendation: Engage wider audiences through media, influencers, and alternative dissemination channels.

Implementation in LIQUIDICE:

- Establishment of media relations (identify 10–15 science and environment journalists, organise press briefings).
- Collaboration with science communicators, influencers, podcasts.
- Organisation of public engagement initiatives, such as photo contests or citizen-oriented campaigns.

VI. Strengthen Internal Coordination and Amplification

Recommendation: Improve internal engagement of consortium partners in dissemination activities.

Implementation in LIQUIDICE:

- Provision of standardised communication materials (templates, visual identity guidelines) in the form of a Communication toolkit spread among the comm officers in partners institutions (mailing list of comm officers is used by the WP5 team already).
- Regular internal reminders and coordination for amplification of key messages**.**
- Monitoring and evaluation of partner contributions through updated KPIs.

Annex 1.

Piccolo Orso teacher training

City	Number of students	Number of teachers trained	teacher training dates
VENEZIA	4450	250	11.11.2025
PORDENONE	2110	100	18.11.2025
REGGIO EMILIA	2780	130	11.12.2025
LUCCA	960	40	13.12.2025
CREMONA	894	18	2.12.2025
MILANO	3527	80	4.02.2026
SONDRIO	1098	50	11.02.2026
COMO	3234	50	9.03.2026
LECCO	1114	30	08.03.2026
	20167		

Performances

Venezia	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	29 January 2026, ore 9.30, 12.00 Venezia, Teatro Malibran	2		4450	150
	30 January 2026, ore 9.30, 12.00 Venezia, Teatro Malibran	2			
	31 January 2026, ore 15.30* Venezia, Teatro Malibran		1		
	1 February 2026, ore 11.00 * Venezia, Teatro Malibran		1		
	3 February 2026, ore 9.30, 12.00 Venezia, Teatro Malibran	2			
	4 February 2026, ore 9.30, 12.00 Venezia, Teatro Malibran	2			
		10			
Pordenone	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	10 February 2026, ore 9.15, 11.00 Pordenone, Teatro Verdi	2		2300	100

	11 February 2026, ore 9.15, 11.00 Pordenone, Teatro Verdi	2			
		4			
Reggio Emilia	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	1 March 2026, ore 16.00* Reggio Emilia, Teatro Valli		1	2800	100
	2 March 2026, ore 9.00, 11.00 Reggio Emilia, Teatro Valli	2			
	3 March 2026, ore 9.00, 11.00 Reggio Emilia, Teatro Valli	2			
	4 March 2026, ore 9.00, 11.00 Reggio Emilia, Teatro Valli	2			
		7			
Lucca	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	18 March 2026, ore 9.45, 18.30* Lucca, Teatro del Giglio	1	1	1100	30
	19 March 2026, ore 9.45, 11.45 Lucca, Teatro del Giglio	2			
		4			
Milano	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	29 april 2026, ore 9.15, 11.15, 14.30 Milano, Teatro Lirico	3		3500	80
	30 april 2026, ore 11.15, 14.30, 20.30* Milano, Teatro Lirico	2	1		
		6			
Cremona	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	31 March 2026, ore 9.15, 11.15 Cremona, Teatro Ponchielli	3		950	30
Sondrio	Performance dates	School performances	Performance for families	Number of Children	Trained teachers

	4 May 2026, ore 9.15, 11.15, 14.30 Sondrio, Teatro Sociale	3		1100	50
Como	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	7 May 2026, ore 9.15, 11.15, 14.30 Como, Teatro Sociale	3		3800	50
	8 May 2026, ore 9.15, 11.15, 14.30 Como, Teatro Sociale	3			
	9 May 2026, ore 16.00*, 20.30* Como, Teatro Sociale		2		
		8			
Lecco	Performance dates	School performances	Performance for families	Number of Children	Trained teachers
	12 May 2026, ore 9.15, 11.15, 14.30 Lecco, Cenacolo Francescano	3		1000	30