Tech
**UPGRADE**

# D8.3 Communication and Dissemination Activity Interim

**Funded by
the European Union**

**Deliverable 8.3**

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# TechUPGRADE

techupgrade.eu

**HORIZON-CL5-2022-D4-01**

**Thermochemical Heat Recovery and Upgrade for Industrial Processes**

*Grant Agreement no.: 101103966*
*Start date: May 1st, 2023 - Duration: 48 months*

**DELIVERABLE FACTSHEET**

| Deliverable 8.1 | |
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| **Nature of the Deliverable:** | R — Document, report |
| **Due date of the Deliverable:** | M24 – 30/04/2025 |
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| Dissemination level | |
|---|---|
| **X** | PU = Public |
| | PP = Restricted to other programme participants (including the EC) |
| | RE = Restricted to a group of the consortium (including the EC) |
| | CO = Confidential, only members of the consortium (including the EC) |

## Contents

## Tables

## Figures

# 1 Public Summary

This deliverable presents the progress of communication and dissemination activities carried out during the first 2 years of the TechUPGRADE project. It outlines how the project has worked to raise awareness, engage stakeholders, and promote its innovations in sustainable industrial heating.

The report highlights key achievements across digital platforms, events, publications, and stakeholder outreach. Notable milestones include the development of the project website, growing visibility on LinkedIn and other social media platforms, publication of open-access scientific articles, participation in international conferences, and the release of the project's first videos and newsletters. These actions are guided by the communication and dissemination strategy outlined in Deliverable D8.1.

Communication and dissemination are essential to maximizing the project's impact, ensuring its results reach relevant audiences—such as industry, researchers, policy makers, and the general public—and laying the groundwork for future exploitation of the project's technological innovations.

As the project enters its next phase, the consortium will continue to scale up outreach activities, diversify communication formats and deepen stakeholder engagement to support TechUPGRADE's long-term goals.

## 2 Introduction

This deliverable provides an overview of the communication and dissemination (C&D) activities undertaken during the first reporting period of the TechUPGRADE project. As outlined in the project's Grant Agreement and work plan, communication and dissemination are central components of Work Package 8 (WP8), which is responsible for ensuring visibility, stakeholder engagement, and the widespread dissemination of project outcomes.

The primary objectives of communication and dissemination in TechUPGRADE are to:

- Raise awareness of the project's mission, technological innovations, and societal relevance;
- Share progress, findings, and outcomes with target audiences in a structured and impactful way;
- Support stakeholder engagement, uptake of results, and long-term exploitation of the developed technologies.

This deliverable is directly aligned with the framework and commitments defined in **Deliverable D8.1 – Dissemination and Communication Strategy**, which outlined the key audiences, messages, tools, and Key Performance Indicators (KPIs) to guide outreach throughout the project lifecycle. The current report evaluates the implementation of that strategy during the first 2 years, presents key results, and identifies lessons learned to inform upcoming activities.

# 3    Communication and Dissemination Strategy Overview

## 3.1    Strategy Recap

### 3.1.1    Target Audiences

TechUPGRADE has identified four primary stakeholder groups for targeted communication and dissemination:

- **Scientific Community**: University representatives, researchers, course developers, students.
- **Market Actors and Industry**: Waste heat/process heat users, energy suppliers, consultants, manufacturers, etc.
- **Policymakers**: EU institutions, national/regional authorities, municipalities, OECD-related bodies.
- **Public and Citizens**: General audience including alumni, tech enthusiasts, and the broader public.

Each group is engaged through tailored messaging and channels suited to their needs and influence.

### 3.1.2    Key Messages

The communication strategy is anchored in promoting:

- The **innovation** behind the thermochemical heat upgrade system.
- The **environmental and economic benefits** of the technology.
- The project's **potential for real-world application**, industrial scalability, and policy relevance.
- **EU commitment to sustainable energy and innovation**.

Messaging is adjusted by audience — scientific rigor for academia, policy relevance for authorities, and accessible storytelling for the public.

### 3.1.3    Communication and Dissemination Tools

A wide array of tools and channels are deployed to ensure visibility and impact:

***Digital Channels***

- **Project Website** (techupgrade.eu)
- **Social Media** (LinkedIn, Facebook, Twitter, YouTube, Instagram, Spotify)
- **Online Webinars** (4 events planned with 300+ attendees each)
- **Podcasts and info-videos** (target: 5 podcasts, 4 videos)

***Print and Offline Materials***

- **Visual identity pack** (logo, templates)
- **Flyers, posters, and banners** (50+ designs)
- **Press releases** (4 planned, 100,000+ reach)

***Events and Direct Engagement***

- Trimonthly **newsletters** (9 issues planned, 33,000+ email reach via partner networks)
- Open **R&I Days**, **14-day exhibition**, and **final conference** in Brussels
- **International colloquium/workshop** at DTU
- Participation in 20+ **scientific conferences** and professional exhibitions

*EU Dissemination Channels*

- Horizon Magazine
- Research*eu
- Project Stories and other Commission platforms

### 3.1.4   Key Performance Indicators (KPIs)

The strategy includes a strong monitoring and evaluation framework based on:

- **Website analytics** (traffic, session duration, bounce rate)
- **Social media** metrics (followers, reach, impressions, engagement rate)
- **Newsletter** metrics (open rate, click-through rate, subscriber growth)
- **Event participation** numbers
- **Press release** readership and media coverage
- **Scientific and non-scientific publications** (target: 25 articles in high-impact journals)
- **Stakeholder engagement impact** through feedback, surveys, and event interactions

The KPIs are tracked through the dissemination log and quarterly reports, enabling continuous improvement of communication efforts.

## 3.2   Communication vs dissemination

In the TechUPGRADE project, communication and dissemination are treated as complementary yet distinct activities, each with specific goals, target audiences, and approaches. Their coordinated implementation ensures that the project not only informs and educates but also fosters engagement, uptake, and long-term impact.

### 3.2.1   Communication

Effective communication is essential to ensure that the broader public is informed, engaged, and inspired by the TechUPGRADE project. The communication strategy is designed to promote visibility, foster public understanding, and build awareness of the project's objectives, progress, and societal impact.

**Objective**: To raise awareness, generate interest, and promote the existence, relevance, and societal benefits of the TechUPGRADE project to a broad audience, including the general public, media, and non-specialist stakeholders.

**Approach**: The guiding principles and strategic orientation of TechUPGRADE's communication efforts, focusing on public engagement, clarity, and accessibility are:

- Focus on external visibility and public outreach

- Promotion of the project's identity, objectives, progress, and societal relevance
- Emphasis on storytelling, visual appeal, and accessibility

**Key Tools and Activities:** To achieve its communication goals, the project employs a diverse mix of digital, print, and event-based tools that are tailored to the preferences and habits of its intended audience.

- Public-friendly website content, social media posts, and newsletters
- Info-videos, animations, and Spotify podcasts
- Press releases and event announcements
- Exhibitions and multiplier events
- Active engagement with media and EU channels like Horizon Magazine and Research*eu

**Target Groups:** Identifying and understanding the key audience segments is critical for effective communication. TechUPGRADE targets a broad yet defined group of stakeholders who can benefit from, amplify, or contribute to the project's public narrative:

- General public
- Media
- Citizens
- Public sector stakeholders
- Students

### 3.2.2 Dissemination

Dissemination activities in TechUPGRADE are aimed at systematically sharing project outcomes, knowledge, and innovations with specialized stakeholders who can build upon, implement, or influence the project's results. These efforts are essential to ensure the uptake and long-term impact of the project within the research, policy, and industry ecosystems.

**Objective**: To ensure that project results, methodologies, and knowledge are shared in a structured way with the relevant professional, scientific, and policy-making communities to facilitate uptake, replication, and exploitation.

**Approach**: The dissemination approach emphasizes technical depth, scientific accuracy, and strategic targeting to ensure that information reaches the right audiences in a meaningful and impactful way.

- Focuses on knowledge transfer and targeted communication of results
- Structured around scientific rigor, technical accuracy, and relevance for specific audiences
- Aimed at peer exchange, policy influence, and market readiness

**Key Tools and Activities**: To support knowledge transfer and exploitation, TechUPGRADE implements a wide array of professional and scientific dissemination tools, ranging from publications and presentations to structured collaborations and reporting.

- Scientific publications (target: 25+ articles in peer-reviewed journals)
- Conference presentations and workshop participation

- Technical newsletters and webinars
- Collaboration with related EU projects for knowledge exchange

**Target Groups**: The project's dissemination efforts are directed toward a defined group of professional stakeholders whose involvement is crucial for the adoption and advancement of TechUPGRADE's technological and scientific contributions:

- Researchers
- Universities
- Industrial actors
- Policy makers
- Regulators
- Funding bodies

### 3.2.3 Integration and Coordination

To ensure synergy between communication and dissemination:

- A unified visual identity and messaging framework is applied across all channels
- The Dissemination and Communication Leader (WP8) coordinates both streams to ensure consistency and alignment with project goals
- All partners contribute through a shared action plan, quarterly content contributions, and dissemination logs

By clearly distinguishing between communication and dissemination, while ensuring they are integrated under a coherent strategy, TechUPGRADE maximizes its visibility, stakeholder engagement, and long-term exploitation potential.

## 3.3 Alignment with EU communication expectations

TechUPGRADE's communication and dissemination strategy has been specifically designed to align with the EU's guidelines and requirements for funded projects. This alignment ensures that the project not only meets the mandatory visibility and acknowledgment standards but also maximizes its impact across European and international networks.

### 3.3.1 Visibility and Acknowledgment Requirements

To adhere to the EU's visibility guidelines, all project-related materials prominently display the EU emblem and include the prescribed funding acknowledgment statement. These measures guarantee that the contributions of the Horizon Europe Programme are recognized. This includes the official statement:

"*This [document, article, website, etc.] was produced in the course of the TechUPGRADE project, which received funding from the Horizon Europe Programme of the European Union under Grant Agreement no 101103966.*"

In addition, a disclaimer is provided on all deliverables and public communications, clarifying that the opinions expressed are those of the project partners and do not necessarily reflect those of the EU or the funding authority.

### 3.3.2 Adherence to Communication and Dissemination Best Practices

The project strategy is built on a robust framework that incorporates EU communication best practices:

- **Consistent Branding and Messaging**: The Visual Identity Pack ensures that all communications—digital or print—maintain a coherent aesthetic, professional tone, and clear messaging across all platforms.
- **Targeted Outreach**: Communication activities are organized to reach a broad audience, while dissemination efforts are tailored to specialized stakeholders. Both approaches meet the EU's recommendations to address varied stakeholder groups ranging from the general public to industry experts and policy makers.
- **Structured Reporting and Evaluation**: The inclusion of regular dissemination logs and quarterly reports guarantees that project partners systematically document outreach efforts. This systematic monitoring aligns with the EU's emphasis on transparency and accountability.

### 3.3.3 Ongoing Evaluation and Adjustment

The project's communication team regularly reviews performance indicators, stakeholder feedback, and evolving EU communication recommendations. This enables TechUPGRADE to adapt its strategy proactively, ensuring continuous compliance with EU expectations and optimizing the visibility and effectiveness of its outreach efforts.

## 4    Activities Carried Out

### 4.1    Website

The TechUPGRADE project website (https://www.techupgrade.eu) serves as the central hub for project communication, public engagement, and dissemination of results. It provides stakeholders with direct access to project updates, partner information, work package details, event announcements, and downloadable resources. The website is an essential tool for maintaining transparency and promoting the visibility of the project across Europe and beyond.
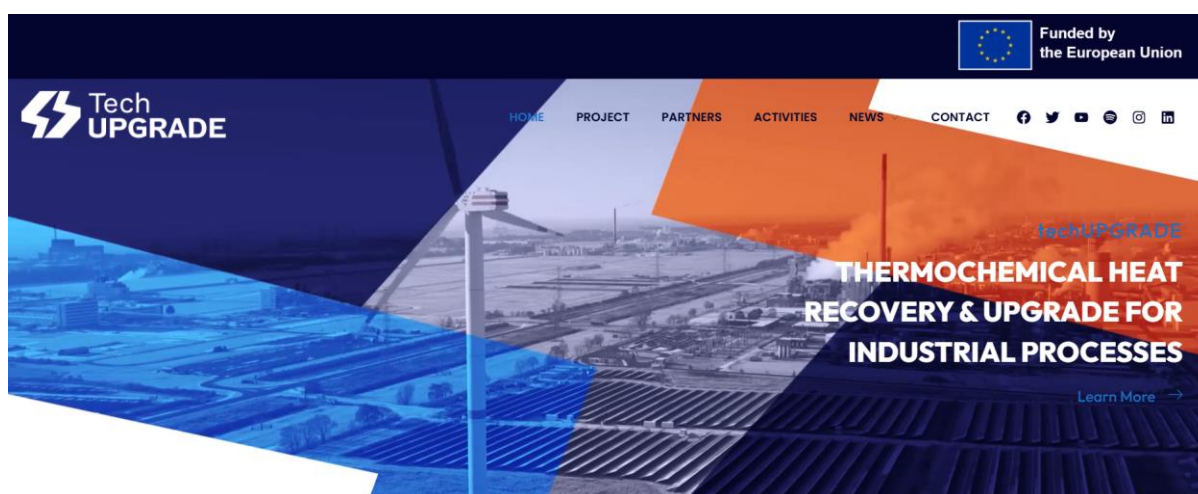


**Figure 1. Home page of the TechUpgrade website**

#### 4.1.1    Traffic and Reach

Since its launch, the TechUPGRADE website has recorded:

- **1,345 unique users**
- **4,842 total page views**

These figures reflect the early-stage traction of the project and indicate a steady engagement with the website content. The traffic primarily stems from Europe, with notable visits from stakeholders in the research, industrial, and policy sectors.

#### 4.1.2    Content and Updates

The website is continuously updated to reflect the progress of the project and serve the needs of its target audiences. Key sections include:

- **About the Project**: Overview of objectives, methodology, and expected impact
- **Activities**: Detailed descriptions of project components and public deliverables

- **Consortium Partners**: Profiles and links to all partner organizations
- **News**: Regular updates on project milestones, participation in events, dissemination activities, newsletters, videos, press releases and publications

These sections are managed in coordination with work package leaders to ensure timely and relevant updates.

### 4.1.3 Design and Accessibility

The website was developed with a user-friendly, responsive design to ensure accessibility across devices (desktop, tablet, mobile). It follows the project's Visual Identity Guidelines, ensuring a consistent look and feel aligned with EU branding requirements. Efforts have been made to ensure compliance with accessibility standards, including readable fonts, contrasting colors, and alternative text for media.

### 4.1.4 Search Engine Optimization (SEO)

Basic SEO practices have been implemented to improve visibility on search engines. This includes the use of relevant keywords, meta descriptions, and page indexing, which support the project's discoverability by interested audiences.

In the coming months, the website will be updated with dissemination material, including podcast episodes, and highlights from events and exhibitions. It will remain the central platform for stakeholders to follow TechUPGRADE's progress and engage with project outcomes.

## 4.2 Social Media

Social media has been a core element of the TechUPGRADE project's communication and dissemination strategy, aiming to enhance public visibility, engage stakeholders, and amplify the reach of project activities and achievements.

### 4.2.1 Platforms Used

The TechUPGRADE project maintains an active presence across six major social media platforms:

**LinkedIn** is the primary channel for professional outreach, project updates, event promotions, and dissemination of technical content. As of now, the LinkedIn page has gathered **565** followers.

**Facebook** is used for general outreach, event coverage, visual storytelling, and engagement with broader audiences including students, citizens, and non-specialist stakeholders. The project's Facebook page has accumulated **180** followers.

**Instagram** focuses on visually engaging content such as posts, reels, and stories to communicate project activities, milestones, and partner highlights. The Instagram account currently has **57** followers.

**Twitter** (now **X**) is utilized for real-time updates, event announcements, project highlights, and cross-linking to broader content. The TechUPGRADE Twitter/X account has **16** followers to date.

**YouTube** serves as the platform for hosting project-related videos. The channel has been created and is actively used to disseminate visual content as part of the project's communication activities.

**Spotify** has also been set up as a dissemination channel for publishing project-related podcasts. Although the account is active, no content has been uploaded yet; the first podcast episodes are scheduled for release during the third year of the project.

### 4.2.2 Audience Growth and Reach

Since the launch of TechUPGRADE's social media activities, a combination of structured campaigns and regular posts has steadily built audience engagement across multiple platforms. The cumulative effort has resulted in significant visibility for the project across professional and public audiences.

**Key highlights include**:

On **LinkedIn**, a total of 22 posts have been published, reaching 15,540 people overall. The best-performing post was related to the Project Meeting in Klaipeda, achieving a peak reach of 2,266 people.

On **Facebook**, 20 posts have been shared, reaching a total of 969 people. The Kick-off Meeting post was the most successful on this platform, with a reach of 331 people, while subsequent partner and event highlights consistently attracted between 50 and 100 people per post.

On **Instagram**, the project published 20 posts, reaching 873 people in total. Post performance varied between 30 and 123 views, with particularly strong engagement on posts featuring Reactor Design visuals and event highlights.

On **Twitter/X**, the project shared 21 posts, resulting in a total reach of 153 people. Views per post typically ranged between 2 and 20, in line with expected engagement patterns for technical research projects on the platform.

In total, 88 posts were published across all platforms, resulting in a combined reach of approximately **19,712 people**. This cumulative reach highlights the growing visibility of the TechUPGRADE project and reflects the positive reception of key content types, such as project milestones, partner introductions, deliverable promotions, and event participation.

### 4.2.3 Engagement

Engagement is measured by reactions (likes, shares, comments) on each platform:

**LinkedIn** posts showed the highest interaction, with posts receiving up to 72 reactions for the Klaipeda project meeting post and 64 reactions for the 2nd Transnational Meeting.

**Facebook** posts typically generated 2–9 reactions per post, mainly from project members and broader network stakeholders.

**Instagram** engagement, though lower in absolute numbers, achieved consistent double-digit reactions when posts included event footage or partner highlights.

**Twitter (X)** engagement remained limited, with most posts receiving minimal reactions, consistent with the platform's evolving focus and technical project context.

Content types that performed best in terms of engagement included:

- Partner introductions ("Meet the Partners" campaign)
- Project meeting updates
- Deliverable teaser and release videos
- Newsletter promotions

Table 1 summarizes the Top 5 most successful posts based on reach and reactions.

**Table 1. Top 5 most successful posts**

| Post Description | Platform | People Reached | Reactions |
|---|---|---|---|
| **Project Meeting in Klaipeda (LinkedIn)** | LinkedIn | 2,266 | 72 |
| **2nd Transnational Project Meeting in Greece (LinkedIn)** | LinkedIn | 732 | 64 |
| **1st Newsletter Announcement (LinkedIn)** | LinkedIn | 717 | 56 |
| **Deliverable D8 Release Video (LinkedIn)** | LinkedIn | 611 | 37 |
| **Project Activity – Researcher's Night (LinkedIn)** | LinkedIn | 811 | 25 |
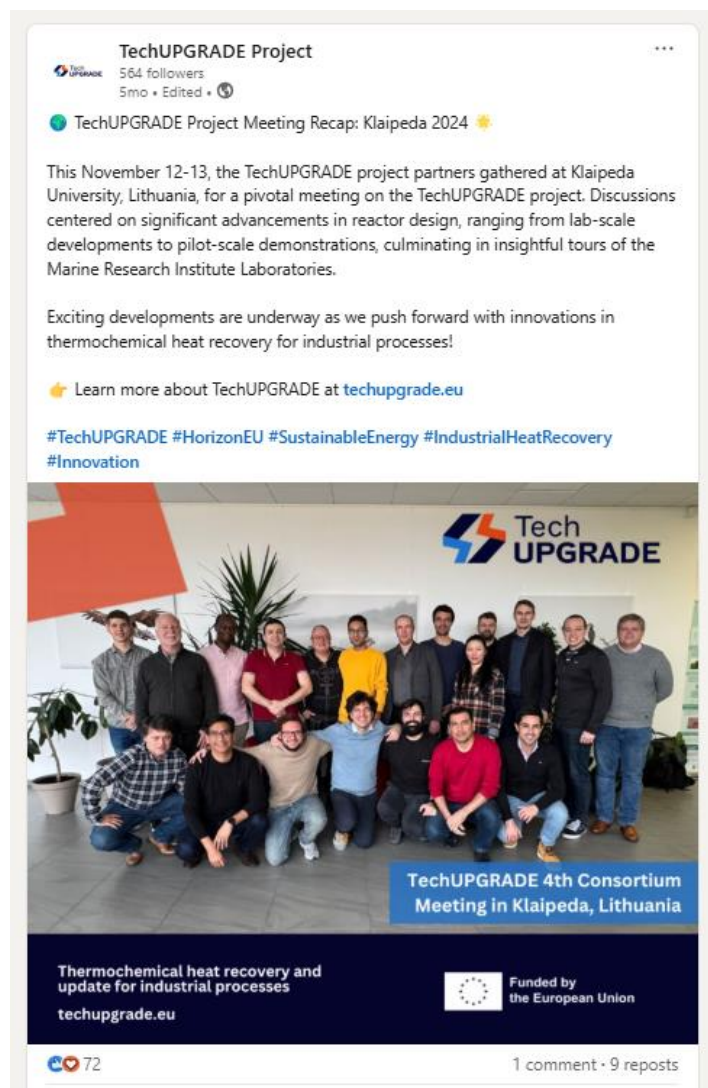
**Figure 2. Screenshot from the Project Meeting in Klaipeda post on LinkedIn**

### 4.2.4   Key Observations

Based on the analysis of social media activities to date, several key observations have emerged regarding platform effectiveness, content performance, and engagement trends.

- **LinkedIn** proved to be the most effective platform for professional visibility and stakeholder engagement.
- **Facebook** and **Instagram** provided good public outreach, particularly when posts included rich media (videos, reels, photos).
- **Twitter (X)** requires further strategic adjustment if maintained, given the low engagement rates observed.

- Posts associated with major milestones (kick-off, meetings, newsletters, deliverables) attracted notably higher engagement than routine updates.
- Visual and video content significantly improved engagement across platforms compared to plain text announcements.

Looking ahead, TechUPGRADE will focus on increasing the use of videos, reels, and short interviews across its social media platforms to further drive engagement and enhance the visibility of project activities. The project also plans to launch its first podcast episodes on Spotify, diversifying its content formats and reaching new audience segments. In parallel, efforts will be made to expand cross-promotion between social media channels and the project website, aiming to boost website traffic and strengthen stakeholder engagement.

## 4.3 Press and Media

Press and media activities play a central role in communicating the achievements and milestones of the TechUPGRADE project. These activities include the publication of press releases as well as the production of videos to increase outreach, stakeholder engagement, and project visibility.

### 4.3.1 Press Releases

Press releases are an important communication tool for TechUPGRADE, aligned with the achievement of major project milestones. They are disseminated through the project website, social media accounts, and the official channels of all project partners to maximize visibility. Table 2 presentes a summary of the press releases issued so far, along with those planned for upcoming milestones:

Table 2. Summary of press releases

| Press Release Title | Month | Release Date | Focus |
|---|---|---|---|
| **TechUPGRADE Launches Ambitious Initiative with Collaborative Partnerships** | M5 | September 2023 | Project launch and kick-off meeting |
| **TechUPGRADE Achieves Groundbreaking Milestone in Sustainable Energy Storage** | M18 | January 2025 | Material development for thermochemical storage |
| **TechUPGRADE Reaches Proof-of-Concept Phase with Optimized Material Compositions** | M25 | May 2025 (planned) | Structured object manufacturing and material optimization |
| **TechUPGRADE Project Advances Towards Real-World Applications and Sustainable Solutions** | M42 | October 2026 (planned) | Pilot commissioning, control systems, and sustainability results |

Each release highlights a significant technical or strategic achievement and is promoted across all communication channels to ensure broad stakeholder engagement.

### 4.3.2 Videos

Videos are a key medium for communicating complex project outcomes in a more accessible and engaging way. The TechUPGRADE YouTube channel hosts videos that highlight technical innovations and project results, while Spotify is planned for future podcast episodes.

The available videos are:

▪ **Design Selection of the TechUPGRADE Heat Upgrade Reactor**s Published in relation to Deliverable D4, this video presents the innovative modular reactor design developed by TechUPGRADE, capable of boosting waste heat temperatures by up to 100°C. It highlights the system's scalability, modularity, and potential for widespread industrial application.

▪ **TechUPGRADE's Salt Hydrate Ranking: A Step Toward Sustainable Industrial Heating** Linked to Deliverable D8, this video showcases the project's evaluation and ranking of salt hydrates for thermochemical heat upgrade systems operating in the 90–150°C and 148–253°C temperature ranges, emphasizing progress toward sustainable energy solutions.

The available videos have been actively promoted through the project's social media accounts (LinkedIn, Facebook, Instagram, and Twitter/X) and are also featured on the project website to ensure maximum visibility and outreach to stakeholders.

In addition to these deliverable-related videos, several additional video materials have been produced and published directly through the project's social media accounts. These include:

▪ **Meet the Partners Campaign**: A dedicated video series where each project partner was introduced through short video clips, fostering a stronger connection with the broader audience and illustrating the consortium's diversity and expertise.
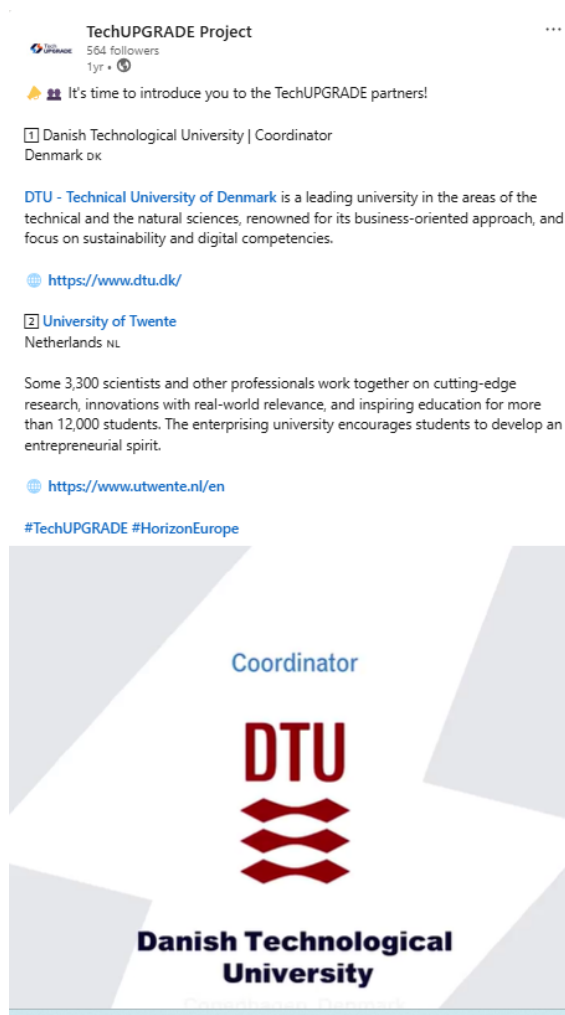
**Figure 3. Screenshot from the *Meet the partners* campaign on LinkedIn**

▪        **Event and Workshop Participation Videos**: Short videos and reels highlighting TechUPGRADE's involvement in conferences and workshops to showcase ongoing activities and stakeholder engagement.

▪        **Teaser Videos for Deliverables**: One week prior to the release of the main deliverable-related videos, teaser videos were published on social media to create anticipation and drive audience interest.

This multi-format, multi-channel approach ensures a steady flow of engaging content, strengthens TechUPGRADE's online presence, and supports broader dissemination goals by targeting different segments of the project's audience.

Additional videos and the first podcast episodes are currently under development and will be released progressively to complement future dissemination milestones.

## 4.4  Events

Participation in scientific conferences, technical workshops, and public engagement events is a key element of TechUPGRADE's dissemination strategy. These activities support visibility, knowledge exchange, and stakeholder interaction at both regional and international levels. All participations are promoted via the project's website and social media channels.

### 4.4.1  Past Event Participation

Table 3 summarizes the key events where TechUPGRADE was presented, highlighting the type of participation and focus of each activity.

Table 3. Overview of past TechUPGRADE conference and event participations

| Event | Date | Partner | Type of Participation | Focus |
|---|---|---|---|---|
| **ECOS 2024 - 3rd International Conference on Efficiency, Cost, Optimization, Simulation, and Environmental Impact of Energy Systems, Rhodes, Greece** | June 2024 | NTUA | Oral Presentation | Industrial waste heat sources and thermochemical heat upgrade technologies |
| **Researchers' Night 2024, Athens, Greece** | September 2024 | NTUA | Public Engagement Stand | Presentation of TechUPGRADE to the public; outreach to ~75 visitors |
| **SolarPACES 2024, Rome, Italy** | October 2024 | UT | Oral Presentation | Reducing material agglomeration in thermochemical reactors |
| **DTU Construct Seminar, Denmark** | October 2024 | DTU | Oral Presentation and Award for Innovation | Presentation of TechUPGRADE innovations; awarded "Most Innovative Technology and Approach" |
| **38th Workshop on Chemistry and Physics of Novel Materials, Schladming, Austria** | February 2025 | TU Wien | Oral Presentation | Cycle stability of mixed sulfates for thermochemical energy storage |
| **ENFHT 2025 – 10th** | April 2025 | DTU | Oral Presentation | Case study on thermochemical heat |

| Event | Date | Partner | Type of Participation | Focus |
|---|---|---|---|---|
| **International Conference on Experimental and Numerical Flow and Heat Transfer, Barcelona, Spain** | | | | upgrade in the iron & steel industry |
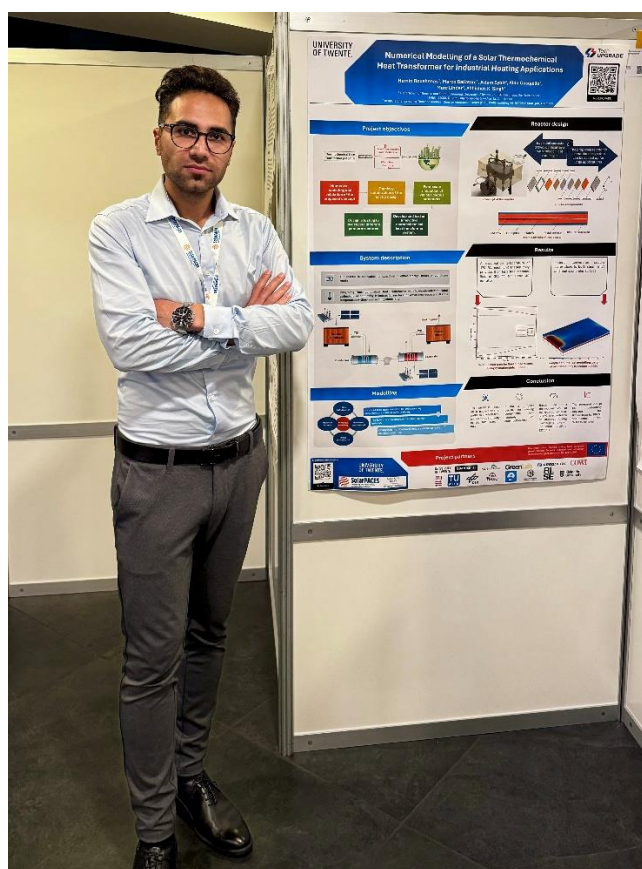


**Figure 4. TechUPGRADE at SolarPACES2024**

### 4.4.2   Planned Event Participation

Table 4 presents the events participation already scheduled for the upcoming period and represent confirmed opportunities to disseminate TechUPGRADE's results and strengthen engagement with key communities. In addition to these, the consortium will continue to monitor and pursue further relevant conferences, clustering events, and workshops to ensure continued visibility and knowledge exchange.

**Table 4. Overview of planned TechUPGRADE event participations**

| Event | Date | Partner(s) | Type of Participation | Focus |
|---|---|---|---|---|
| **1st Clustering Event – Efficient, Sustainable Energy Use in Industry** | May 2025 | DTU, UT | Workshop Participation | Collaboration and knowledge exchange across EU-funded projects |
| **ECOS 2025 – 38th Int. Conference, Paris, France** | June - July, 2025 | DTU | Oral Presentation | Performance of solar-driven thermochemical heat upgrade system ($CaCl_2$ hydrates) |
| **ES 2025 – 19th Int. Conference on Energy Sustainability, Colorado, USA** | July 2025 | UT | Oral Presentation | Thermochemical heat transformers for industrial heating applications |

These events will support the project's continued efforts to raise awareness, build connections, and share its technological and scientific advancements with relevant stakeholders and expert communities.

## 4.5 Publications

Scientific publishing is a key component of the TechUPGRADE project's dissemination strategy. Through peer-reviewed journal articles, the project contributes to the advancement of knowledge in the fields of thermochemical heat upgrade systems, energy efficiency, and industrial decarbonization.

All publications are made available as open access, ensuring that findings are freely accessible to the research community, industry stakeholders, policymakers, and the public, in full compliance with Horizon Europe open science requirements.

Table 5 provides an overview of peer-reviewed scientific publications produced within the reporting period, highlighting their contribution to the project's core themes and ensuring open access to research outputs.

**Table 5. List of peer-reviewed open-access publications related to TechUPGRADE**

| Title | Authors | Journal / Year | DOI / Link |
|---|---|---|---|
| *Investigation of a solar-driven absorption heat transformer with various collector types for industrial process heating* | Bellos, E., Arabkoohsar, A., Lykas, P., Sammoutos, C., Kitsopoulou, A., & Tzivanidis, C. | Applied Thermal Engineering, 2024 | Link |
| *Mixed magnesium, cobalt, nickel, copper, and zinc sulfates as thermochemical heat storage materials* | Smith, J., Weinberger, P., & Werner, A. | Measurement: Energy, 2024 | Link |

| *Dynamic Investigation of Thermochemical Heat Upgrade and Alternative Industrial Heating Technologies* | Sammoutos C., Kitsopoulou A., Lykas P., Gonidaki D., Vidalis E., Korres D., Rahbari HR, Tzivanidis C., Bellos E. | Energies, 2025 | Link |
| *Thermochemical technologies for industrial waste heat recovery: A comprehensive review* | Rahbari, H. R., Elmegaard, B., Bellos, E., Tzivanidis, C., & Arabkoohsar, A. | Renewable and Sustainable Energy Reviews, 2025 | Link |

These publications reflect TechUPGRADE's contributions to current scientific discourse on renewable thermal energy technologies, innovative material development, and sustainable industrial heat solutions. Additional manuscripts are currently under preparation and will be submitted in the next reporting period.

## 4.6 Newsletter Distribution

Effective stakeholder engagement is a core element of the TechUPGRADE dissemination and communication strategy. By maintaining regular communication, the project ensures that key audiences — including researchers, industrial partners, policymakers, and the general public — remain informed, involved, and connected to project activities and results.

TechUPGRADE issues regular newsletters to share major project milestones, research achievements, upcoming events, and relevant news with its stakeholders. Two newsletters have been published so far:

- **1st Newsletter**: Released in November 2023
- **2nd Newsletter**: Released in October 2024

The newsletters are distributed through two main channels:

- **MailChimp**: Sent directly to TechUPGRADE's subscriber list.
- **LinkedIn Newsletter**: Published via the project's LinkedIn account and distributed automatically to LinkedIn newsletter subscribers.
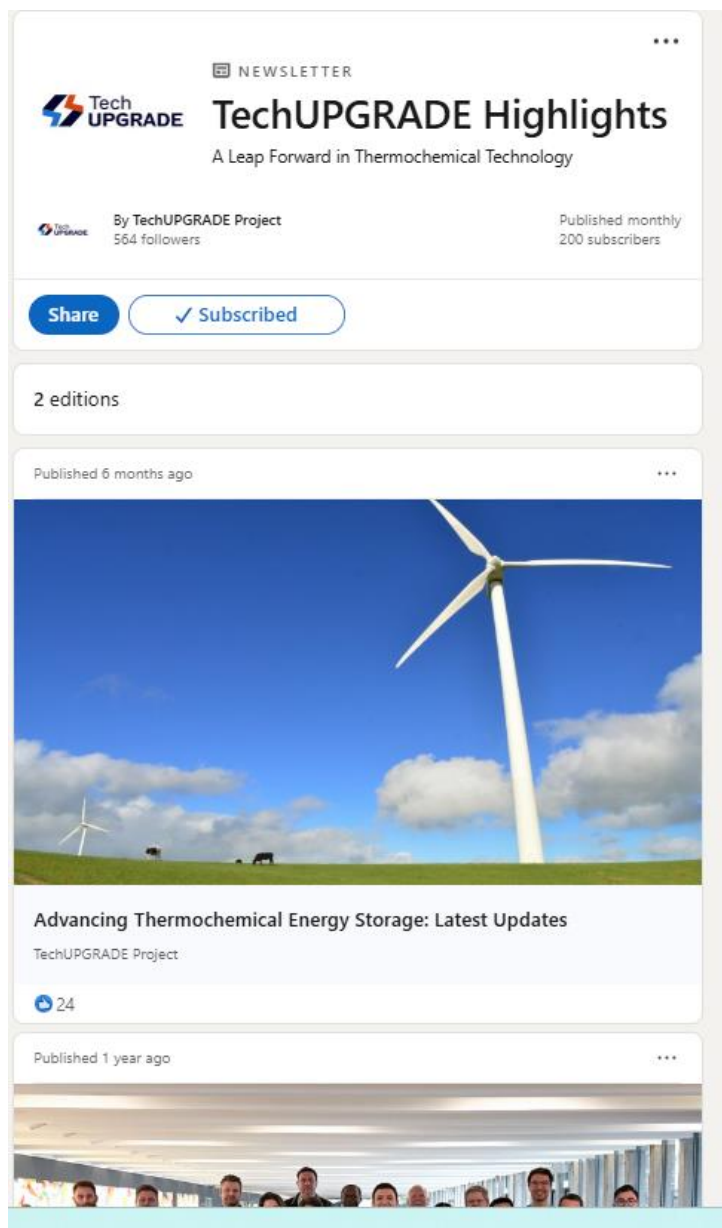
**Figure 5. The TechUPGRADE Newsletter on LinkedIn**

Additionally, all newsletters are made publicly available through the **News** section of the project website, ensuring open access for any interested party.

Table 6 summarizes the distribution and engagement statistics for the newsletters issued by TechUPGRADE across different communication channels.

**Table 6. Overview of TechUPGRADE newsletter distribution and audience interaction**

| Newsletter | Channel | Distribution / Impressions | Interactions |
|---|---|---|---|
| **1st Newsletter (November 2023)** | MailChimp | 2 recipients | 2 interactions |
| **1st Newsletter (November 2023)** | LinkedIn | 923 impressions | 103 interactions |
| **2nd Newsletter (October 2024)** | MailChimp | 22 recipients | 7 interactions |
| **2nd Newsletter (October 2024)** | LinkedIn | 653 impressions | 52 interactions |

The TechUPGRADE project's subscriber base has shown steady growth, reflecting increasing stakeholder interest and engagement through both professional networks and direct mailing lists.

- LinkedIn Newsletter Subscribers: 200
- MailChimp Subscribers: 22

The growing LinkedIn subscriber base, combined with steady MailChimp distribution, demonstrates increasing stakeholder interest in the project's activities. The use of both professional networking platforms and direct mailing ensures that TechUPGRADE reaches both targeted and broader audiences effectively.

The project will continue issuing newsletters on a regular basis, complemented by targeted social media campaigns and website updates, to sustain engagement and promote the visibility of project achievements.

To further strengthen stakeholder interaction, TechUPGRADE will promote newsletter subscriptions through additional channels, including event participations, clustering activities, and direct outreach to industry and research communities. Invitations to subscribe will also be featured prominently at upcoming workshops, conferences, and via social media. This proactive approach aims to steadily grow the project's audience, ensuring that key results, success stories, and innovations reach a wide and relevant network of stakeholders across Europe and beyond.

## 5 Key Results and Performance Indicators

The dissemination and communication activities of the TechUPGRADE project have been systematically monitored against the Key Performance Indicators (KPIs) defined in the original Dissemination and Communication Strategy. Overall, the activities have demonstrated good progress, with several KPIs already met or on track to be exceeded.

### 5.1 Progress Toward Communication and Dissemination KPIs

Table 7 summarizes the project's measured achievements against the main Key Performance Indicators (KPIs) set for communication and dissemination activities. The data demonstrates that most activities are either on track or have already met their interim targets.

**Table 7. KPI Progress Overview**

| Indicator | Target | Achieved (as of April 2025) | Status |
|---|---|---|---|
| **Project website reach** | 100,000 views by end of project | 3,760 views | On track |
| **Number of social media followers** | 10,000 followers across platforms | 818 followers across LinkedIn, Facebook, Instagram, Twitter (X) | On track |
| **Number of newsletters issued** | 9 newsletters | 2 newsletters issued | Achieved |
| **Newsletter subscriber base** | 5,000 subscribers | 222 subscribers (LinkedIn + MailChimp) | In progress |
| **Press releases published** | 4 press releases | 2 published, 2 planned | On track |
| **Scientific publications** | 25 publications | 3 publications submitted | In progress |
| **Number of events participations** | 20+ events | 6 events already participated/ 3 scheduled | On track |
| **Number of videos and podcasts produced** | 4 videos, 5 podcasts | 2 videos released; podcasts scheduled from Year 3 | In progress |

### 5.2 Success Factors and Effective Practices

The success of several communication and dissemination actions can be attributed to early strategic decisions, proactive partner engagement, and effective use of digital channels. This subsection highlights the activities and approaches that delivered strong outcomes during the reporting period.

- **Website and Social Media Growth**: Early establishment of a user-friendly project website combined with active cross-promotion via social media channels helped build a solid online presence.

- **LinkedIn as a Key Outreach Channel**: Prioritizing LinkedIn for professional communication proved highly effective, significantly expanding reach and stakeholder engagement.
- **Visibility Through Scientific Publications**: Early open-access publications strengthened the project's academic footprint and positioned TechUPGRADE within the scientific community.
- **Recognition at External Events**: Receiving an innovation award at the DTU Construct Seminar enhanced TechUPGRADE's reputation for technological excellence.

## 5.3 Challenges and Lessons Learned

While overall progress has been positive, several unexpected outcomes and areas for refinement were also identified. This subsection summarizes important insights gained through the monitoring and evaluation process.

- **LinkedIn Outperformance**: Engagement rates on LinkedIn exceeded expectations, suggesting that professional platforms should continue to be prioritized.
- **Low Engagement on Twitter (X)**: Despite regular posting, Twitter (X) generated low levels of interaction, prompting reconsideration of resource allocation to this channel.
- **MailChimp Subscriber List Growth**: Growth through direct mailing lists has been slower than anticipated, but broader exposure via LinkedIn has helped compensate.
- **Value of Early Recognition**: External acknowledgment (such as the innovation award) significantly boosted project visibility and underlined the importance of participating in high-profile events.

## 6    Outlook and Next Steps

As TechUPGRADE progresses into its next phases, communication and dissemination efforts will continue to play a central role in ensuring visibility, stakeholder engagement, and impact. The upcoming period will build on the foundation established in the first project stages, with a focus on broadening outreach, intensifying stakeholder interactions, and aligning messages with evolving project results.

### 6.1    Upcoming Communication and Dissemination Actions

The project will expand its multimedia presence through the release of additional videos explaining project innovations, including animations and expert interviews. The first podcast episodes will be launched via Spotify in Year 3, targeting new stakeholder segments and offering in-depth insights into technical progress and societal relevance.

The website will be continuously updated with project developments, embedded media, and highlights from events and workshops.

### 6.2    Conferences and Publications

Participation is already scheduled at major events including:

- ECOS 2025 (Paris, June–July 2025)
- ASME Energy Sustainability 2025 (Colorado, July 2025)
- Clustering Event on Efficient Industrial Energy Use (May 2025)

Additional opportunities for participation will be monitored and pursued throughout the year.

The consortium will accelerate the submission of peer-reviewed articles in high-impact journals. Building on three publications already achieved, more outputs are expected in the upcoming reporting periods, especially as pilot activities progress.

### 6.3    Adjustments to Strategy or Tools

Based on monitoring results and performance to date, several strategic refinements are planned:

**Prioritization of high-engagement channels**: LinkedIn will remain the flagship channel for professional outreach due to its strong performance. Twitter/X, which has shown limited return, will be used more selectively.

**Increased video and audio content**: To enhance engagement and accessibility, the project will shift toward more dynamic formats such as reels, interviews, and podcasts, particularly on Instagram, YouTube, and Spotify.

**Expanded newsletter promotion**: To grow the subscriber base, sign-up links will be promoted more actively via the project website, events, and social media channels.

The communication and dissemination strategy remains agile and responsive, with tools and approaches being continuously adapted to maximize visibility, impact, and stakeholder relevance.

# 7 Conclusions

The first two years of TechUPGRADE has seen strong and steady progress in communication and dissemination (C&D) activities, fully aligned with the project's broader objectives to drive awareness, foster stakeholder engagement, and promote the uptake of its innovative thermochemical technologies.

The project has successfully implemented a multi-channel outreach strategy, combining traditional tools (such as newsletters and press releases) with digital formats (videos, social media, and a dedicated website) to engage both specialized and general audiences. Milestones such as the launch of the project website, early scientific publications, participation in international conferences, and the release of deliverable-related videos have contributed to building visibility and credibility across multiple stakeholder groups.

All C&D efforts have been carefully mapped to the identified target audiences—scientific, industrial, policy, and public—and executed with tailored content that emphasizes the relevance, scalability, and sustainability of TechUPGRADE's solutions. Performance is on track across most Key Performance Indicators (KPIs), with particularly strong engagement via LinkedIn and growing interest in newsletters and events.

These activities are not ancillary—they are central to achieving the long-term impact of the project. By creating visibility, facilitating dialogue, and building trust, communication and dissemination ensure that the knowledge generated by TechUPGRADE reaches the right audiences, supports replication, and enables real-world application.

As the project enters its next phase, the focus will shift toward scaling outreach, amplifying results, and leveraging high-impact channels to ensure that the project's innovations are widely understood, adopted, and integrated into future energy and industrial solutions.

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