HORIZON-EUROHPC-JU-2021-COE-01
MAX - CENTRE OF EXCELLENCE FOR HPC APPLICATIONS
GA n. 101093374

D6.3

MaX communication, exploitation, and dissemination Plan – Final version

Marina Corradini, Daniele Varsano, Andrea Ferretti, Pablo Ordejón, Elisa Molinari, and Luisa Neri

Due date of deliverable:	30/06/2025 (month 30)
Actual submission date:	30/06/2025
Final version:	30/06/2025
Revised version:	dd/mm/20yy
Revised version submission:	dd/mm/20yy

Lead beneficiary:	ICN2 (participant number 3)
Dissemination level:	PU - Public

Document information

Project acronym:	MAX
Project full title:	Materials Design at the Exascale
Research Action Project type:	Centres of Excellence for HPC applications
EC Grant agreement no.:	101093374
Project starting / end date:	01/01/2023 (month 1) / 31/12/2026 (month 48)
Website:	www.max-centre.eu
Deliverable No.:	D 6.3

Authors: Marina Corradini, Daniele Varsano, Andrea Ferretti, Pablo Ordejón, Elisa Molinari, and Luisa Neri

To be cited as: M. Corradini et al. (2025): MAX communication, exploitation, and dissemination Plan – Final version. Deliverable D6.3 of the HORIZON-EUROHPC-JU-2021-COE-01 project MAX (final version as of 30/06/2025). EC grant agreement no: 101093374, ICN2, Fundació Institut Català de Nanociència i Nanotecnologia.

Disclaimer:

Versioning and contribution history:

Version	Date	Author	Note
First draft	27/03/2025	Marina Corradini	- Review of D6.1; - Updated CED actions and GANTT charts;
	24/06/2025	Marina Corradini, Daniele Varsano, Andrea Ferretti, Pablo Ordejón, Elisa Molinari, and Luisa Neri	Review of document.
	25/06/2025	Marina Corradini	Final version.

LIST OF ABBREVIATIONS

CED: Communication, Exploitation, and Dissemination

CoE: Centre of Excellence

NCC: National Competence Centre

HPC: High Performance Computing

CSA: Coordination and Support Action

HW: Hardware

SW: Software

WP: Work Package

KPI: Key Performance Indicators

SWOT: Strengths, Weaknesses, Opportunities, and Threats

D6.3 MAX communication, exploitation, and dissemination Plan – Final version

Table of contents

1 Executive Summary

This deliverable presents an updated Communication, Exploitation, and Dissemination (CED) plan refined after two years of practical experience. As MaX Centre of Excellence (CoE) entered its third phase, its strategic role in advancing computational materials science and driving innovation at the exascale level has been reaffirmed. Building on the success of previous phases, MaX continues to strengthen the European high-performance computing (HPC) ecosystem thanks to the support of member states working on the development of innovative hardware and software for the advancement of computational materials science. **MaX technical and scientific efforts are structured across two key domains:**

1. **Software for next-generation computing**
2. **Enabling scientific advances for global societal and industrial challenges through excellent codes**

Our CED actions have been therefore strategically designed to cover these two axes, to make sure that the expected outcomes of the project are effectively promoted and will resonate well beyond the project lifetime. Key features of this updated CED plan are more targeted, impact-oriented actions to engage with industry stakeholders, policymakers, and developers, and a better alignment with the overarching objectives of the EuroHPC Joint Undertaking. **The CED Plan is structured around three pillars:**

1. **Stakeholder Engagement**
2. **Training and Education**
3. **Communication, Dissemination, and Exploitation**

Each pillar contributes to a coordinated effort to broaden MaX reach, deepen collaborations within the materials and HPC communities and beyond, and foster the uptake of project results across the different target audiences. Particular emphasis is placed on inclusivity, gender balance, accessibility, and the communication of scientific challenges and success cases to society at large. As a foundation for all our activities and initiatives, we consistently seek to strengthen collaborations with the other Centres of Excellence (CoEs), National Competence Centres (NCCs), and CASTIEL2.

2 Introduction

MaX Centre of Excellence (CoE) plays a critical role in advancing computational materials science by harnessing exascale computing power. MaX enables a novel approach to use computational science for materials research and innovation, unlocking unprecedented insights into the design and discovery of novel materials and devices. Building on achievements from previous phases, MaX continues to push the boundaries of HPC while consolidating support for innovative hardware and software solutions. By enabling exascale-driven frontier research, MaX aims at facilitating advances in materials simulations for next-generation technologies, with the objective of generating wider scientific, economic, societal, and "human" impacts:

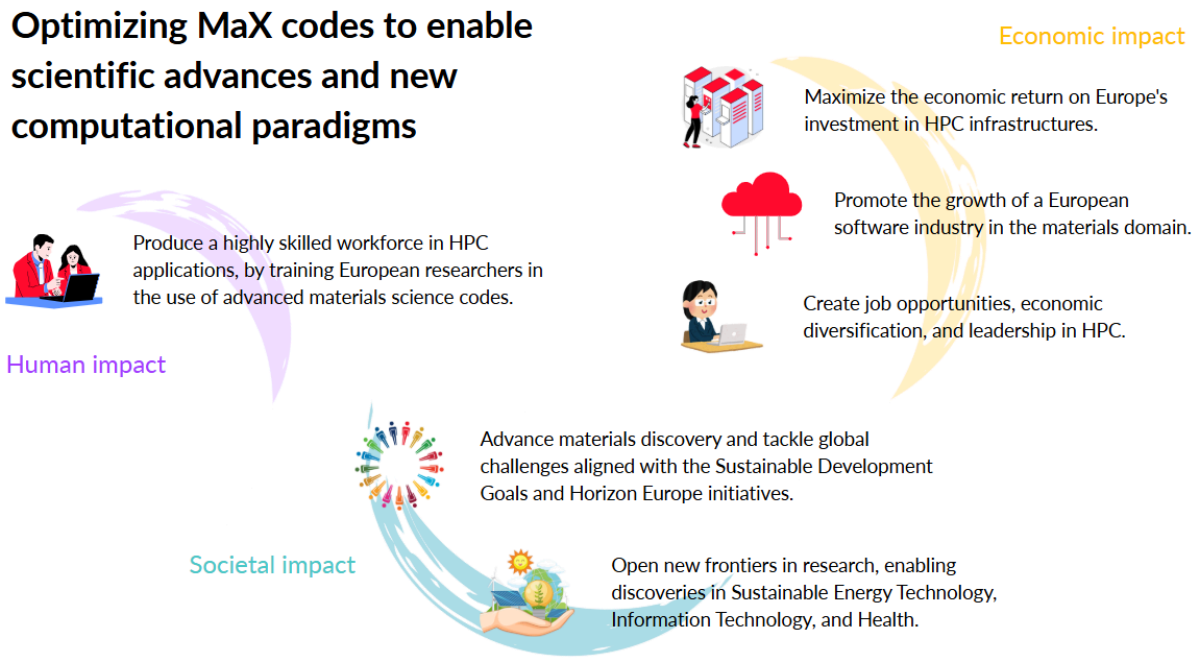


Figure 1: Wider scientific, economic, societal, and "human" impacts of MaX.

MaX addresses key scientific and technological needs tied to high-performance computing and advanced materials research. Its work is vital for advancing HPC-driven materials science and strengthening Europe's leadership in these fields. In particular, MaX efforts are structured across two key domains:

1. **Software for next-generation computing.**
2. **Enabling scientific advances for global societal and industrial challenges through excellent codes.**

A detailed description of MaX technical and scientific objectives has been outlined in Deliverable D6.2 Impact Assessment Report - mid term version.

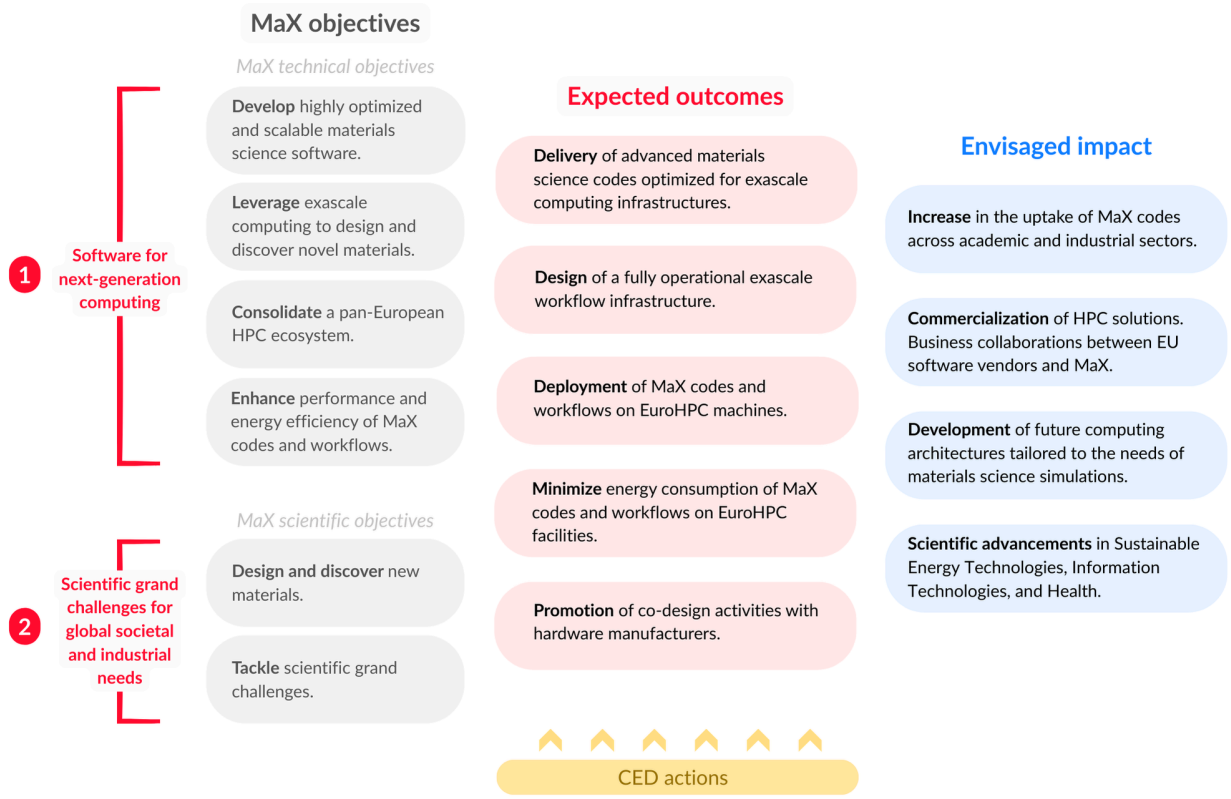


Figure 2: MaX technical and scientific objectives, with a schematic view of their expected outcomes at the end of the project, and their envisaged impact beyond the project lifetime.

3 Aligning CED actions to project objectives, outcomes, and impacts

Our communication, exploitation, and dissemination actions have been therefore strategically designed to cover the two key domains of MaX, to make sure that the expected outcomes are effectively promoted and will resonate well beyond the project lifetime:

1. Code repositories and deployment publicly available to facilitate widespread adoption and usability among the academic and industrial communities.
2. Benchmarking results publicly available on various communication channels to demonstrate the performance and scalability of MaX codes in running efficiently on the EuroHPC machines.
3. Scientific/technical advancements presented in high-impact scientific journals and conferences to contribute to scientific progress within the materials and HPC communities.
4. Strong digital presence to ensure broad visibility of, and engagement with, the project outcomes among our diverse audiences.
5. Open Access and Open Data compliance to facilitate the adoption of codes and the sharing of documents, papers, and data among the research community and beyond.
6. Foster synergies with other EU and national projects to fully integrate the scientific advancements generated by MaX.

A description of MaX CED initiatives is presented extensively in Section 9.

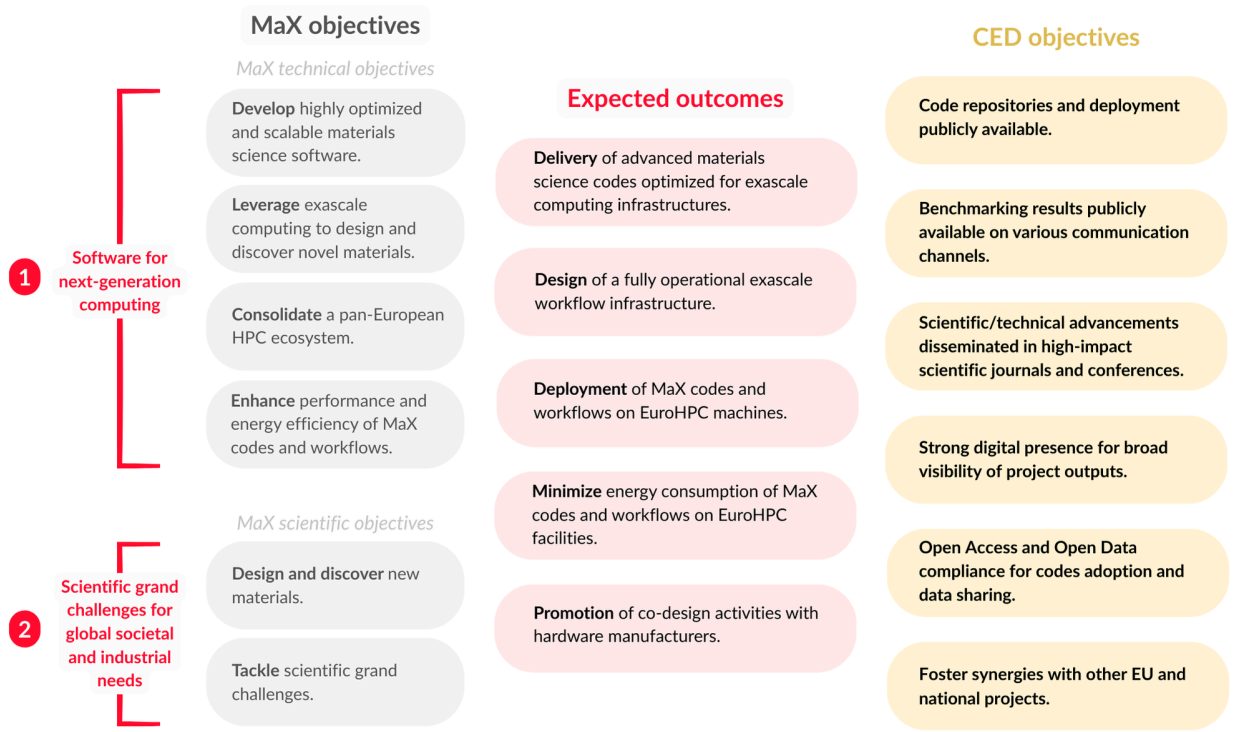


Figure 3: To ensure the effective communication, exploitation, and dissemination (CED) of the project results and meet the expected outcomes, WP6 has structured its effort along the two key axes of MaX.

4 MaX Legacy

Since its launch in 2015, the Materials design at the eXascale (MaX) Centre of Excellence has significantly influenced the scientific and technological landscape of computer and materials simulation. While the field itself has seen numerous developments over the past four decades, MaX inception marked a turning point in the approach to complex problems.

The project's legacy begins with its first phase, where it made substantial strides in adapting to the disruptive advent of massively parallel systems. This necessitated an extensive re-engineering of the quantum materials modelling codebase, setting the foundations for the project's innovative approach.

Building on this success, the second phase focused on the subsequent challenge posed by the emergence of heterogeneous compute systems, like GPGPUs. Adhering to the "separation of concerns" strategy, this phase involved significant restructuring of select codes into independent software layers. This strategy is key to MaX strategy, promoting independent development and optimisation of various aspects of the simulations.

Now in its third phase, MaX is leveraging its past accomplishments to continue to drive the European materials simulation community into the exascale era. The objective is to harness the power of massively parallel heterogeneous computing systems to tackle previously daunting scientific challenges.

A selection of 'lighthouse codes' including QUANTUM ESPRESSO, SIESTA, YAMBO, FLEUR, and BigDFT, evolved from flagship codes to exascale applications, operating collaboratively within tightly-bound exascale workflows. The development and success of these codes exemplify the project's dynamic evolution and vision for the future.

Today, the MaX community is a thriving network of trained HPC professionals, academic researchers, and industry partners. The collective expertise, as well as the success stories that emerge from this collaboration, highlights the significant contribution of MaX to the High-Performance Computing ecosystem. The present plan builds on the previous experiences gathered by the MaX community to bring its impact beyond what has been achieved so far.

5 SWOT analysis

Figure 4: Schematic view of the SWOT analysis of the MaX project.

To draft an impactful and efficient communication plan, it is very useful to perform a SWOT analysis of the CoE's environment and experiences.

STRENGTH:

Experience and Legacy: The project builds on a strong legacy with extensive experience in simulation and HPC fields. The successful first and second phases create credibility and trust.

Collaborations: The very concept of the Centres of Excellence is focused on creating synergies with HPC centres, other projects and educational institutions, broadening the scope and reach of the initiative.

Comprehensive Approach: MaX CoE covers a wide range of areas from stakeholder engagement, training, and education to communication, dissemination, and exploitation. This ensures a wide outreach.

Brand Building and Inclusion: The plan prioritises the strengthening of the MaX brand and promoting inclusivity, which will create a positive image and attract diverse stakeholders.

WEAKNESSES:

Target Audience: To effectively achieve a broad outreach, MaX requires focused communication strategies for specific target groups such as policymakers, software developers, industry stakeholders, and the general public. Such tailored messages require further development.

Evaluation Mechanism: The communication strategy requires a robust mechanism for evaluating the effectiveness of the communication and outreach activities. Feeding such reporting systems requires a shared effort and clear workflows that need further development and implementation along the project's lifetime.

Dependence on Partners: The project's success highly depends on the successful collaboration and contribution of various partners and stakeholders.

OPPORTUNITIES:

Policy Environment: There is an increasing global focus on exascale computing and materials science, which could provide a favourable policy and funding environment, with initiatives such as CASTIEL2 that coordinates shared impact opportunities.

Skills Development: The focus on training and education provides an opportunity to develop skills in the community, thus fostering a greater adoption of the MaX resources.

Digitalization and AI: With global changes involving AI and digitalization, there are opportunities to leverage new technology and platforms for communication and outreach. Emerging tools will have an impact in creativity and content curation, improving the dissemination materials generation.

Increasing Interest in STEAM: There is growing interest in science, technology, engineering, arts, and mathematics (STEAM) fields, providing a wider audience for the project's outreach efforts.

THREATS:

Rapidly Changing Technology: While this provides opportunities, it also means that the project has to constantly adapt to stay relevant.

Competition: There may be other similar projects or initiatives, and staying ahead may require constant innovation and improvement.

Public Perception: The complexity of the field may lead to misperceptions or misunderstandings among the general public, affecting the project's image.

Budget Constraints: Any potential budget cuts or constraints could affect the implementation of the comprehensive communication plan.

6 Objectives

The main objective of the MaX Communication Plan is to create a strong and impactful communication strategy that raises awareness about the MaX project, showcasing its objectives and achievements while also strengthening its brand and engaging with a diverse range of target audiences.

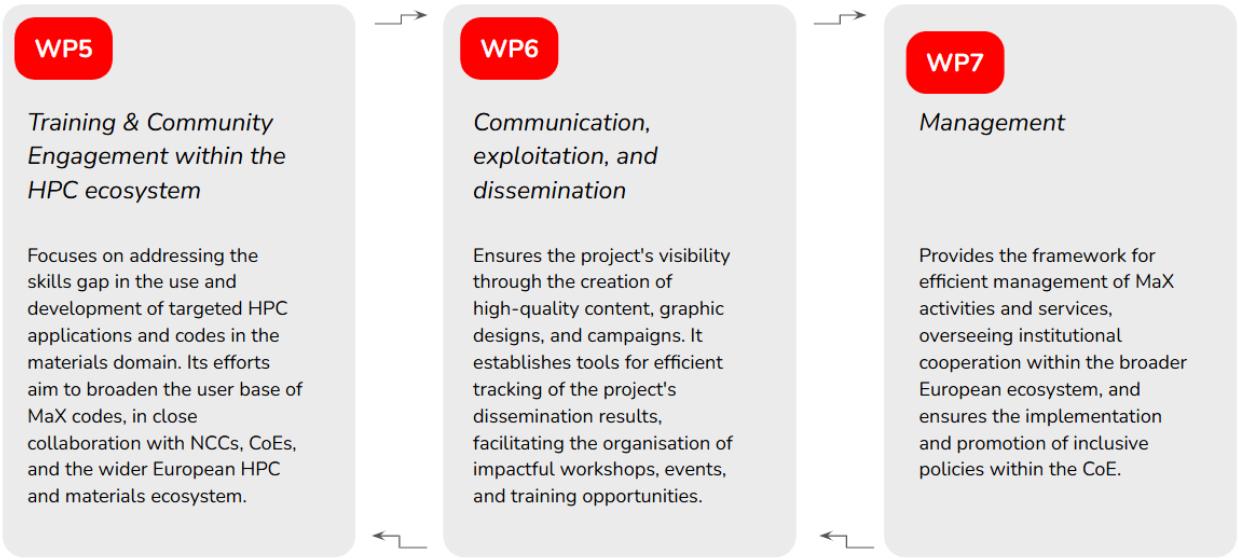
As stated in the project proposal, the objectives of the WP6 Communication, exploitation, and dissemination are to:

- **Ensure** a coordinated and continued communication of the MaX project, providing appropriate visibility to all stakeholders through the generation of high-quality content, graphic designs and campaigns.
- **Deliver** an ambitious communication plan with SMART objectives and feasible KPIs. The plan will define the key audiences, channels, and strategies to maximise the impact of the MaX results and deliverables.

• **Establish** the tools for an efficient tracking of the project's dissemination results and its subsequent assets against the target stakeholder groups.
• **Facilitate** the organisation of workshops, events and training that maximise the impact and exploitation opportunities of the project.

A transversal effort involving the broad MaX community

The ultimate goal of the present CED plan is to establish long-lasting relationships and impacts that will span beyond the lifetime of the project. Our Communication Plan is designed to create a synergistic workflow involving all the project's work packages, particularly **WP5 Training & Community Engagement**, **WP6 Communication, Exploitation, and Dissemination**, and **WP7 Management**. Each of these WPs plays a crucial role in the overall success of the project, and their interplay is fundamental to achieving our shared goals:



It is only through a coordinated effort across all these pillars that the project can achieve core impacts, such as enhancing the visibility of the MaX brand and opportunities to a wide audience, ensuring the impact of the training efforts, and promoting the uptake of the MaX codes among diverse audiences. This concerted approach also ensures that our commitment to diversity and equality remains at the forefront of our work, underlining our belief that these values are vital for the advancement of the scientific community and society as a whole.

7 Target audiences

The following audiences will be targeted via tailored communication, exploitation, and dissemination materials and strategies. The objective is not only to cover the full exascale ecosystem, but also to showcase the power of MaX beyond its usual public, hence reaching out to new population segments.

● **Project Partners** (internal communication). Internal communication among partners is crucial for the correct advancement of the project and the achievement of its goals. MaX has implemented a strong internal communication strategy, and systematised most of the recurring tasks in WP6, to facilitate scientific collaboration, information flow among partners, reporting, and coordination.

● **Researchers.** The research community beyond the project partners is a key target audience. High-profile events and contents will be delivered for the communities of researchers that will use MaX results in the materials science domain. Two specific subgroups will focus our efforts:

1. **Materials science researchers:** We are always looking to expand our connections within the materials science community. We actively network with materials science researchers across Europe and maintain a broad network of contacts beyond Europe. The main objective is to disseminate the results for uptake and event announcements coming from MaX among the research community.

2. **Code developers:** Specific events and actions will be announced to engage code developers in the materials domain, to promote awareness about the MaX codes and opportunities. Key messages will include the announcements of hackathon-like events and tailored training, both to engage new users and to attract talented coders (in collaboration with WP5).

● **Supercomputers and National Competence Centres in HPC.** Interaction with Supercomputers and NCCs is crucial for MaX, as they are key actors in dissemination of our results and products, the engagement of the user's communities, and training events, schools, and hackathons organised by and around MaX. They will be both a target of our communication and dissemination activities, and sources of information about MaX to the HPC community at large. Direct channels of communication will be established through the management team with the different NCCs (including those already present in MaX as partners of the consortium, like BSC in Spain and Leonardo and CINECA in Italy), and complementary CoEs.

● **Industry.** To reach their full potential for impact, the MaX results must make their way towards industrial applications. Potential industrial users of the lighthouse codes are therefore a key target community for our communication and dissemination activities, and a crucial potential actor for exploitation of MaX results. **HW manufacturers** and **SW vendors** are additional important actors, both in the co-design activities and in the potential for economic impact of the MaX applications if incorporated into commercial services and products. Interaction with relevant HW manufacturers is ensured due to their participation in the consortium, and the links already established with external ones (e.g., Eviden, Sipearl, NVIDIA, AMD, INTEL). Links with SW vendors, as possible exploitation channels for MaX software developments, are restricted to companies within the European Union and the Participating States of the EuroHPC Joint Undertaking.

● **Policy makers.** MaX contributes to inform and support decision making by the competent stakeholders in the rapidly evolving European supercomputing landscape. Content and actions in this regard are produced through different approaches: (i) the curation of articles and events specifically designed for policy makers; (ii) the design of open-science events based on the RRI principles that allow the co-creation of documents reflecting the interests, concerns, and opportunities defined by different stakeholders; (iii) the long and stable collaboration with CASTIEL2, as MaX has been actively involved in HPC CoE Council (HPC3) since its foundation.

● **Digital media.** Impact on digital media is a strategic objective, as channels to spread the results and explain the achievement of MaX among European citizens. The cross-influence of digital content has an enormous potential to create cooperation opportunities, public awareness, and a positive perception of the European efforts and capabilities in leading the development and exploitation of the next generation of computers and codes.

● **European citizens.** The new edition of MaX will multiply its efforts to reach out to European citizens through engaging outreach events (e.g., the European Researchers' Night) and other local events attended by MaX experts. Such actions will pursue a favourable opinion towards European investments and capabilities in frontier computing and codes, and contribute to attracting new talent to computing-related disciplines.

8 Available channels

To ensure effective outreach and engagement, the MaX Centre of Excellence employs a diverse range of communication channels tailored to its different target audiences. These channels are used to gather

project information, showcase project milestones, share technical insights, and promote events and results.

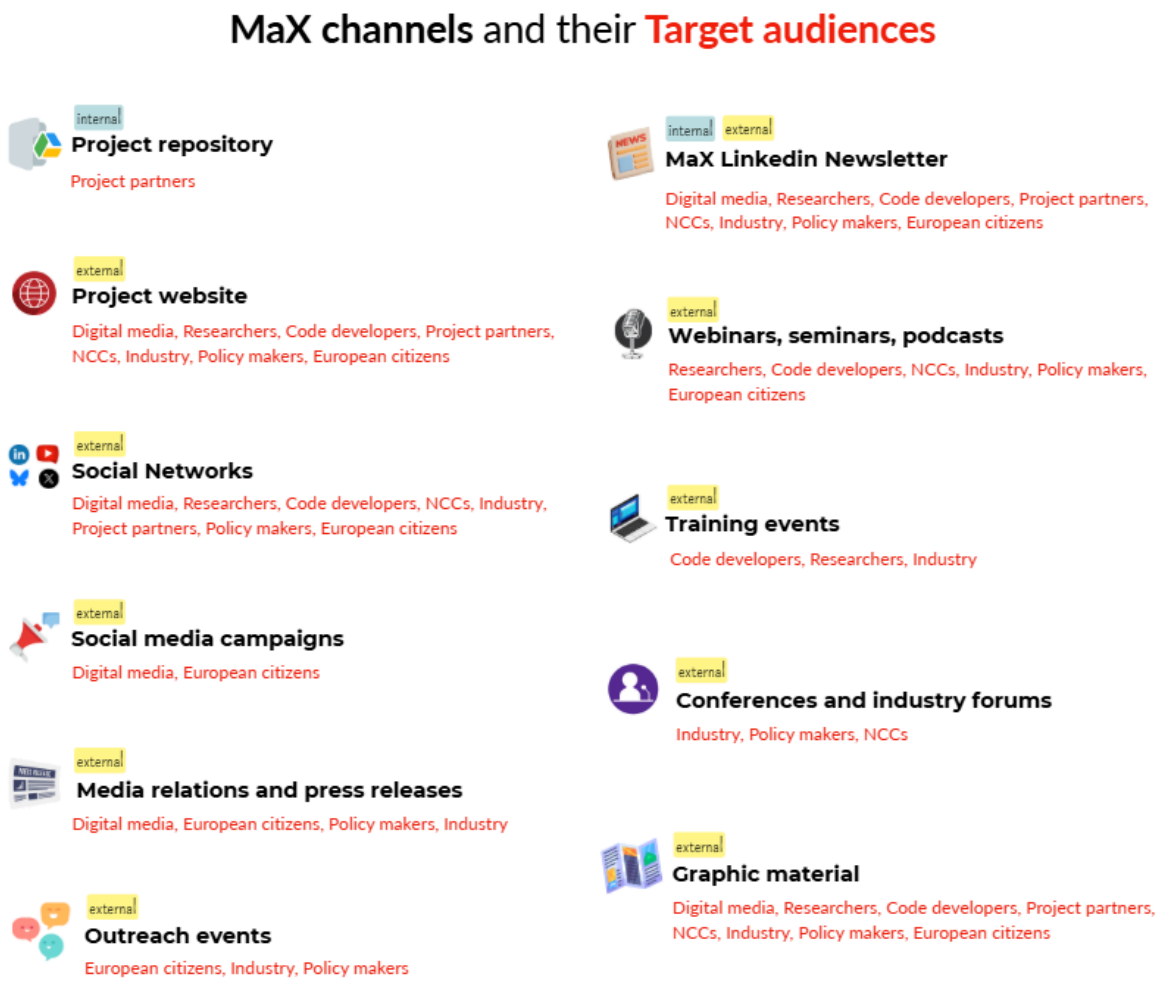


Figure 5: Overview of MaX internal and external channels used to reach out to the pool of different target audiences described in Section 6.

The main channels created by MaX to effectively reach out to its different target audiences are:

- **Project Repository.** The internal communication framework includes a dedicated repository platform based on Google Drive, a shared calendar, and other collaboration tools, which will serve both scientific and management purposes.

  MaX Repository structure:

1. MaX Official documents
2. MaX Continuous Reporting
3. MaX Events
4. MaX Deliverables
5. General Assembly
6. WPs: a dedicated repository for each WP. Each WP has a dedicated room store where files are stored and shared with the working group and the management team.
7. MaX Partners: an additional working space divided per partner. Each partner can use its folder to save documents and files.

In addition to these internal communication tools the Consortium has 2 reference files: the SINGLE ENTRY POINT (a collection of deadlines, activities, information, all stored in a single file, which is continuously updated) and the MaX GUIDELINES for MANAGEMENT (a short manual to orient the everyday activity of the consortium and the relationship of each partners with the management staff).

- **Project website.** Available at https://www.max-centre.eu/, MaX website has been active since 2016 and serves as the central hub for information, providing access to key updates, publications, and resources. Consortium members continuously update and review its content, which is managed and edited by WP5, WP6, and WP7. To enhance visibility and engage the MaX digital community, selected sections are shared on social media, covering both general topics (such as upcoming events, training sessions, and recent scientific publications) and technical/scientific updates (including project advancements, new releases of MaX lighthouse codes, and progress in deploying MaX codes on EuroHPC machines). The website is currently being renewed to reflect the project's evolution within the HPC ecosystem. The new website has transitioned from the current content management system (Drupal) to a more developer- and user-friendly platform (WordPress), with Search Engine Optimisation (SEO) actions to improve the visibility and usability of MaX online content.

- **Social Networks.** Essential for enhancing MaX online presence and amplifying MaX messages, the social networks facilitate real-time interactions, reaching both the scientific community and

the general public. Our social media platforms include LinkedIn[1], YouTube[2], X[3], and BlueSky[4]. In early 2025, MaX reduced its activity on X, due to several ongoing concerns about the platform's direction, and launched a BlueSky account, as the platform seems to better align with the values of our scientific community. To ensure accessibility in our social media communication, we include alternative text (alt text) for images and avoid excessive use of emojis to support blind and partially-sighted users.

- **Social media campaigns** realized on specific occasions (e.g., the International Day of Women and Girls in Science, 11 February) also help us further increase followers' engagement with our content. By adopting these tactics, MaX aims to build a broader and active online community that is also interested in MaX "transversal" activities and initiatives.

- **MaX LinkedIn Newsletter.** A useful approach to share the project's advances among its partners and beyond. MaX Newsletter issues[5] are released regularly to keep stakeholders informed about project milestones, technical advancements, upcoming events, and collaboration opportunities. The structure of the newsletter is composed of *teaser* paragraphs with external links directing readers to full articles on our website or additional content on other MaX platforms. This approach is intentional, as most readers skim rather than thoroughly read the content. By keeping the structure concise, we encourage readers to explore more content on our other digital platforms.

- **Webinars, seminars, and podcasts.** MaX regularly attends online and on-site scientific and outreach events to promote its results to diverse audiences. Additionally, podcasts have been integrated into MaX communication strategy as an increasingly popular tool to engage the general public.

- **Training events**. Building upon the success of prior iterations, WP6 *Communication, exploitation, and dissemination* and WP5 *Training & Community Engagement* are joining forces to increase the impact of MaX specialised training and education efforts. WP6 promotes the project's emphasis on upskilling the European users' community in computational materials science and HPC applications. Our effort lies in amplifying outreach activities, particularly to the emerging user communities in the EuroHPC JU, strengthening MaX influence on the HPC ecosystem.

[1] https://www.linkedin.com/company/max-centre/
[2] https://www.youtube.com/channel/UCcoGe0aUy4gDVRNgjQlVf3g
[3] https://twitter.com/max_center2
[4] https://bsky.app/profile/max-coe.bsky.social
[5] https://www.linkedin.com/build-relation/newsletter-follow?entityUrn=7221808079808393219

- **Media relations and press releases.** Used to showcase MaX key milestones (e.g., project kick-off, publication of selected papers, success stories, major events and collaborations). MaX targets media impact through national and international press releases and direct contacts with journalists, also leveraging its partners' networks.

- **Conferences and industry forums**. MaX enhances its presence in selected international events by supporting as a sponsor and/or participating with a project booth. The booth serves as a platform to showcase the project's main objectives and results to a broad audience, to promote the brand recognition, and to establish new contacts with potential stakeholders.

- **Graphic material.** MaX produces graphic materials such as flyers, infographics, branding materials, and brochures that help increase brand recognition and promote the project's goals. This material is tailored to different stakeholders and made available to MaX partners for use at selected events, conferences, and industry forums.

- **Outreach events and activities.** Outreach is a key dissemination tool to create awareness about the strategic challenges faced by MaX and the advances made by the consortium. We will co-create outreach content to be distributed through the project communication channels as well as by the partners in local science fairs and outreach events.

- **Brand identity:** MaX has made an effort to build a strong and recognizable brand identity. Starting from our bold red logo and related visual identity, we have further developed a “brand identity package” including:
    - banners for training events
    - dedicated templates for the “featured images” of the News items (categorized into “General News”, “Events”, and “Scientific Publications”).
    - matching templates for the respective social media posts

  These actions ensure our content is instantly recognizable on all our digital channels, helping us build recognition and trust among our audience.

9 Strategic pillars, actions, and SMART KPIs

The communication plan for the MaX project is **based on three fundamental pillars:** (1) Stakeholder Engagement, (2) Training and Education, (3) Communication, Dissemination, and Exploitation. Each pillar is developed into a series of actions and KPIs that will guide the Centre's communication efforts toward MaX objectives and better engage with our different target audiences. These actions are designed to be

transversal, as they may use one or more communication channels throughout the entire project lifecycle.

Figure 6: The three main pillars of the MaX Communication, Exploitation, and Dissemination Plan.

Pillar 1: Stakeholder engagement

The first pillar of the MaX communication plan is centred around stakeholder engagement. This pillar aims to create a **stronger community around the MaX project** by developing tailored actions for different stakeholders. The actions will be carefully curated to ensure that stakeholders are kept informed about key project updates, achievements, and events.

The plan also includes building a joint communication strategy with HPC centres, NCCs, and other European Flagship projects through the sharing of benchmark data, success stories, papers, and documents in compliance with Open Access and Open Data policies. By sharing our data, repositories, benchmarks, and results, and by fostering long-term collaborations, we aim to build a robust community and generate a lasting impact that endures well beyond the duration of the project.

Action 1

Proactive content generation: The ICN2 communication team, together with the MaX CoE Cnr management team and communicators from all involved actors, will generate a continuous stream of up-to-date content that will be distributed by the project partners. The aim is to keep partners and other stakeholders informed about the project's progress, achievements, and future goals. This will include communication kits, exclusive graphic designs, and other relevant content. By proactively generating updated content, MaX aims to ensure that stakeholders are kept up-to-date on the project's activities and achievements.

SMART KPIs:

- **MaX Website:** Producing at least **4 news items per month** related to the MaX CoE activity. The news items are shared through the project website and Social Networks with the support of the MaX partners. Some selected topics, ranging from scientific breakthroughs to participation in relevant events, might be suitable for broader visibility through press releases disseminated via the local media networks of project partners.

- **MaX Social Networks:** MaX social media platforms are used to promote MaX CoE's activities and engage with followers. Social media updates on LinkedIn, BlueSky, and -in the first two years of the project- X, promote project activities and drive engagement with followers.
    - At least 4 posts per month (publishing frequency: once per week) on LinkedIn introducing MaX-related highlights.
    - At least 4 posts per month (publishing frequency: once per week) on the project's BlueSky account per month.
    - At least 5 new videos per year on the YouTube channel.
    - Increase the number of followers by 100% by the end of the project (M48).

  The figures at the start of the project are as follows:
  [M0] LinkedIn >700 followers; BlueSky n/a; YouTube:>400; X: >1400.

- **MaX Linkedin Newsletter:** In the evolving digital landscape, MaX continually explores innovative ways to reach out to our audiences. As part of its content strategy, MaX launched its Linkedin Newsletter, a recent feature proposed by the platform that has been gaining attention in recent years. MaX Linkedin Newsletter highlights the project updates and ensures that stakeholders are kept up-to-date with the latest developments.
    - At least 4 Newsletter releases per year.

- Increased reach of the newsletter subscribers.

- **MaX Branding Events and Seminars:** To broaden the impact of the MaX brand, a variety of general events will be leveraged, transcending the traditional technical and training sessions. Our objective is to extend our outreach to a diverse audience of potential users and coders by supporting community engagement events fostered by WP5 and supporting events beyond WP5 when needed. By ensuring the presence of MaX experts at these multifaceted events, we will provide a platform to showcase the MaX brand, emphasising the wealth of opportunities it presents. This initiative is not only a relevant component of our communication strategy but is also a means to nurture an inclusive and expansive community.
  - Support at least **2 Community Engagement events curated by WP5**.
    2 specific banners, 2 specific news pieces, 4 specific social media posts.
  - Organize at least **2 events beyond WP5** when opportunities and needs arise (e.g., workshops in cooperation with the National Competence Centres in HPC).
    2 specific banners, 2 specific news pieces, 4 specific social media posts.

Action 2

Joint communication strategy: Developed with supercomputing and HPC centres, NCCs, complementary CoEs, and other European Flagship projects. Working together with key European initiatives such as CASTIEL2 offers an opportunity for synergistic efforts, increasing the impact over different audiences. Aligning messages with other CoEs, as well as with supercomputing and NCCs in HPC, will create a stronger and more impactful message. These increased efforts reflect our strong commitment to the collaborative mission of the EuroHPC initiative. By working closely with other NCCs and CoEs, MaX actively supports the shared goal of strengthening the European HPC ecosystem through improved coordination, shared visibility, and joint strategic actions.

SMART KPIs:

Building a **joint communication strategy** with supercomputing and HPC centres, NCCs, CoEs, and other European Flagship projects.

- Establish an updated contacts database by M10, regularly updated once per year.
- Discussing shared opportunities with key stakeholders in at least 10 meetings (open and one-to-one) by the end of project.
- Fostering collaborations with related CoEs (e.g., ESiWACE3, ChEESE, MultiXscale).

- Having an active role in at least 2 discussion forums per year where to disseminate and exploit HPC-related results (e.g., CASTIEL2 communication meetings).
- Designing at least one communication material/activity shared with other CoEs, NCCs and HPCs per year.
- At least 6 yearly contributions on the HPC in Europe Portal[6], to centralize information about CoEs and NCCs' objectives, outcomes, and milestones.
- At least 6 yearly contributions to the CASTIEL2 Social Media Content Plan for CoEs[7], to support the growing of CASTIEL2 digital reach while maximizing the dissemination of MaX advances and achievements beyond our own channels.

Action 3

Benchmark data on the performance of MaX applications:

- Developing and sharing **benchmark data** on the performance of MaX applications in existing EuroHPC computers.
- Disseminating **results about MaX codes performance** when new breakthroughs and benchmark analysis are published.
    - At least 1 yearly news item about MaX codes' performance.
    - At least 2 dissemination brochures with benchmarking information before the end of project.
    - Benchmark brochure disseminated at least at 4 international conferences by the end of the project (M48).
- Curating **success cases achieved by MaX.** These stories showcase the potential of the lighthouse codes combined with exascale computers in achieving solutions for industrial and societal challenges. Such material serves as **examples of exploitation pathways** that will pave the way for further application approaches and interactions.
    - At least 1 yearly news item about MaX success cases to be shared with and by CoEs, NCCs, and HPC centres.
    - At least 2 press releases during the life of the project. This implies identifying impacts worth becoming press releases. Impact inside and outside the MaX CoE, together with the journalistic interest of the covered topics, will determine when a press release should be curated and launched in a coordinated way by different CoE nodes.
- Facilitating the **sharing of codes, papers, and documents** in compliance with Open Access and Open Data policies. The project communication and management team will ensure that all

[6] https://hpc-portal.eu/
[7] http://bit.ly/44ywN6E

relevant data, articles, and documentation is immediately available in Open Access and following the open Science requirements.

- Updated list of articles related to the MaX Codes available in the MaX Centre website, including at least one link to their open access version.
- Updated list of all deliverables and final documents curated within the MaX Centre available on the website.

Pillar 2: Training and Education

Training is a crucial component in introducing the MaX codes and workflows to a wider audience and fostering their adoption within different communities, including academia, industry, and young students. As such, the MaX CoE has prioritised within WP5 *Training & Community engagement* the development of comprehensive training materials and programmes to provide researchers and industry professionals with the necessary skills and knowledge to effectively utilise the project's resources.

This pillar is one of the main communication pathways to **foster the exploitation of the MaX CoE results**. The present communication plan supports the promotion and coverage of the training and educational events in order to multiply their impact and visibility. The training and education-related actions of the MaX communication plan are:

Action 1

Promote and ensure coverage of the training webinars and events: Led by MaX WP5, MaX training programme is strategically designed to equip computational materials scientists and industrial stakeholders with the advanced competencies required in the rapidly evolving HPC landscape, particularly in view of Europe's transition toward exascale computing under the EuroHPC Joint Undertaking. With a strong branding effort and proper coverage of the main highlights of these events, including website news, social networks posts, and when available recordings and videolectures of the full training, MaX WP6 helps promote and ensure access to training initiatives.

SMART KPIs:

Promotional materials developed for the WP5 training sessions for researchers and industry professionals on the use of MaX codes and workflows:

- At least 4 promotional banners per year

- At least 20 training-related posts per year on LinkedIn, BlueSky, and X
- At least 4 News items on the MaX website to cover the training events

Training material, recordings, and videolectures are made available to the MaX community and beyond:

- At least 4 videos per year: when available, the **training event videos** will be available on YouTube and/or on the MaX section of the e-Learning platform Lhumos[8].
- At least one **educational video per code available before the end of the project on how to master the MaX codes**, shared via YouTube or Lhumos.
- Training information regularly uploaded on the HPC in Europe Portal[9], with the aim of centralizing HPC training and information across Europe.

Action 2

Broadening access to Training: Training materials are publicly accessible through the MaX website, MaX YouTube channel, and, from January 2024, the MaX section on the Lhumos e-learning platform. These resources support continuous learning and extend the reach of MaX training beyond individual events. To ensure broad dissemination and long-term impact, MaX will compile its training materials into a digital, printable Training Booklet. This format ensures centralized access to content from schools, workshops, and lectures, supporting self-paced learning and long-term skill development. The booklet contributes to the sustainable transfer of knowledge across the materials science and HPC communities.

SMART KPIs:

- Release of a MaX Training booklet for the community of code users between M30 and M48.
- > 50 downloads by the end of the project.

Pillar 3: Communication, Dissemination and Exploitation

Pillar 3 of the MaX CoE focuses on the communication, dissemination, and exploitation of the Centre's work, bringing the MaX applications to the attention of a wider audience. Through **targeted communication strategies and impactful visual displays**, we aim to showcase the potential of MaX in revolutionising computational materials science. By incorporating gender and inclusion issues and

[8] https://alpha.lhumos.org/
[9] https://hpc-portal.eu/

building joint communication strategies with other European projects and Centres of Excellence, we are committed to creating a community that celebrates diversity and collaboration. The communication, dissemination, and exploitation actions of the MaX communication plan complement the previous pillars through:

Action 1

Strengthening the MaX brand: A three-folded strategy will be pursued to make the MaX brand even stronger. This will involve implementing a revamped project image with a cross-impact in all its products and actions, creating high-quality content to be distributed via the different communication channels, events, and training activities, and having a voice of its own in selected international events.

SMART KPIs:

- **Google Drive based repository:** This platform facilitates the interactions and workflows within the MaX centre, but also makes all dissemination materials available for the MaX partners to ease the access and use of the branded materials. The platform is a tool to facilitate a coherent branding among partners. The internal interaction platform is available from the beginning of the project, the instructions to successfully use the repository and facilitate the interactions among the partners have been shared during the Kick-off meeting and distributed to the partners.
- **Revamped website:** As MaX entered its third funding phase, it became clear that the website needed to evolve to better reflect the project's updated goals, structure, and expanding audience. The existing website, while functional, was initially built to serve earlier phases of the project. A key motivation behind the revamp was the transition to WordPress to support more efficient communication and content dissemination, critical as the project grows in scope and reach.
    - **Website critical content update:** the structure and content require a thorough refresh. This includes a SEO analysis of the content and a series of actions to make it more efficient and user-friendly. This ensures the site remains relevant, accessible, and aligned with the latest project developments.
    - ***Soft* launch of revamped website by M30**: A soft launch helps us test the new website to polish it accurately before it is publicly released. MaX members will have early access and the chance to get used to the new system. This approach allows for a smoother transition, improves user experience, and ensures the revamped website meets expectations and aligns effectively with the project's third phase.

- **Launch by M36**:. After being tested during the soft launch, the website will be fully ready for official release by M36.
- **Website monthly visits:** Reach the number of monthly visits to >6000 per month by the end of the project.

- **Corporate flyer:** Updated version of previous flyer by M6. Release of MaX corporate flyer, showcasing the new iteration of MaX and outlining its new goals and approaches. Corporate flyers distributed in at least 6 international events by the end of the project (M48).
- **MaX booth:** The booth serves to increase the impact of the project in strategic international events, attracting target stakeholders interested in the project outcomes. MaX will be showcased through a *booth*, as a sponsor/exhibitor itself or through the consortium partners' booth at conferences, in at least 4 international events by end of project (M48). We target at least 100 documented contacts happening at the booth (by the end of project), measured by *on site* data collection from booth visitors.
- **New PPT template**, including general slides about the MaX centre. The template will support a harmonised dissemination through its consortium partners when presenting MaX at conferences and seminars. We target at least 10 international events by the end of the project where to showcase MaX slides.

Action 2

Gender and inclusion issues: MaX will implement an inclusive and gender-balanced communication strategy and image in collaboration with WP7 *Management* and other WPs such as WP5 *Training & Community engagement*. We will review our contents before release through an inclusive and gender-friendly prism, and develop specific actions, such as participating in Women-in-Science events, promoting female talents to engage in the coding, scientific, and industrial challenges fostered by MaX. We will also celebrate inclusive events and deploy unbiased talent attraction efforts.

SMART KPIs:

- **Specific yearly campaigns and outreach events:** develop social media campaigns and participate in outreach events on the occasion of specific yearly commemorations (e.g., February 11, the International Day of Women and Girls in Science, and March 8, the International Women's Day).
- **Female talent and leadership:** Host at least 2 events focused on female talent and leadership by the end of the programme (M48).
- **Raise the visibility of MaX female scientists:** at least 3 female profiles highlighted on social media per year. Whenever possible, female protagonists will be brought into the light to offer new role models to the next generations of researchers.

- **Review of website content and dissemination materials** to detect gender and diversity bias and ensure that diversity is reflected in the MaX Centre's graphic materials. Gender and diversity analysis of the MaX dissemination materials by M12.

Action 3

Citizens awareness and Public Outreach: essential for MaX to share its mission and results with the general public. These efforts help people understand the importance of MaX research and how it impacts society. By participating in outreach events, MaX can connect with students, teachers, policymakers, and citizens, helping build trust and support for our work. Outreach activities also inspire the next generation of scientists. Research to Business (R2B) or Research to Industry (R2I) events are also other important platforms that connect research institutions, universities, and innovation centres with businesses, industry leaders, and potential investors. These events are appealing for the MaX consortium as they facilitate knowledge transfer, technology commercialization, and collaboration between academia and industry for potential applications in real-world industrial settings.

SMART KPIs:

- **Public outreach events:** participation in at least 8 public outreach events before the end of the project.
- **Outreach material:** clear and engaging material (e.g., brochures, posters, videos, presentations) will make MaX scientific mission and results more accessible. Outreach material showcased in at least 8 public outreach events by the end of the project.

10 GANTT charts

Pillar 1 - Stakeholder engagement									
Action: Proactive Content Generation									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	4 news items per month								
	4 BlueSky posts per month								
	4 LinkedIn posts per month								
	> 20 new videos on YouTube by end of project (5 per year)								
	Increase SSNN followers by 100% by end of project (25% per year)								
	> 4 Newsletter issues per year								
	Increased reach of the Newsletter								
	Support 2 WP5 engagement events and foster 2 events beyond WP5 by end of project.								
Action: Joint Communication Strategy									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	Updated contacts database								
	Open and one-to-one meetings (at least 10)								
	Active role in discussion forums (2 per year)								
	> 1 material/activity shared with CoEs, NCCs and HPCs per year.								
	At least 2 yearly contributions on HPC in Europe Portal (since launch)								

	At least 6 yearly contributions to the CASTIEL2 Social Media Content Plan for CoEs								
Action: Benchmark data on the performance of MaX applications									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	1 yearly news item about MaX codes performance								
	Benchmark Flyer								
	Benchmark Flyer disseminated at least in 4 international conferences by end of project								
	>1 yearly news item about MaX success cases								
	2 press releases about relevant impacts by end of project								
	Updated list of articles related to the MaX Codes								
	Updated list of all deliverables and final documents								

2 - Training & Education

Action: Promote and ensure coverage of the training webinars and events									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	> 4 promotional banners per year								
	> 20 training-related posts on SSNN								
	4 training-related news items on the MaX website per year								
	> 4 training event videos per year								

	5 video tutorials on how to master the MaX codes by the end of project								
	Training information regularly uploaded on HPC in Europe Portal								
Action: Broadening access to Training									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	Training booklet for the community of code users								
	> 50 downloads by end of project								

Pillar 3 - Communication, Exploitation, and Dissemination

Action: Strengthening the MaX brand									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	Google Drive based repository								
	Website critical content update								
	"Soft launch" of revamped website								
	Launch of revamped website								
	> 6000 website monthly visits								
	Quick update of previous flyer								
	New corporate flyer delivered								
	Flyer distributed in >6 international events by end of project								
	MaX showcased through a booth in at least 4 international events by end of project								

	> 100 documented contacts happening at the booth by end of project								
	New PPT template								
	MaX Slides showcased in >10 international events by end of project								
Action: Gender and inclusion issues									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	Specific yearly campaigns and events								
	Host 2 events focused on female talent and leadership by end of project								
	3 female profiles highlighted in MaX SSNN per year								
	Gender and diversity analysis of MaX digital content and dissemination materials								
Action: Citizens awareness and Public Outreach									
	KPI	**M6**	**M12**	**M18**	**M24**	**M30**	**M36**	**M42**	**M48**
	Participation in at least 8 public outreach events before end of project								
	Outreach material showcased in at least 8 public outreach events by end of project								

11 Changes between D6.1 and D6.3, revisions to KPIs, and underlying rationale

To date, MaX has reached its halfway point. The first two years of the project provided valuable insights and practical experience to assess and refine our initial Communication, Exploitation, and Dissemination Plan outlined in D6.1[10]. We have had the opportunity to test different approaches, evaluate their mid-term impact, and identify areas for improvement.

[10] https://bit.ly/441CWbq

In the initial phase of the project, MaX identified, among others, two promising areas for communication and dissemination as potentially valuable for expanding MaX visibility beyond its habitual audience and fostering early interest in computational materials science.

- The first area (Partnering with pre-grade educational institutions) focused on collaborating with pre-grade educational institutions to adapt MaX training and educational materials. This initiative aimed at fostering scientific vocations and inspiring young students, particularly those from underrepresented groups, to pursue careers in computational fields.
- The second area (Exploring innovative outreach approaches) focused on exploring innovative outreach approaches, including the creation of a virtual exhibit in the MetaVerse, augmented/virtual reality strategies, and a holographic design. Such approaches were intended to be used in public outreach events and fairs to attract attention and spark conversations with the general public about the MaX project.

These actions were aligned with our initial priorities of inclusivity, talent development, and public engagement. However, as the project progressed, our objectives and strategic focus evolved to respond to emerging needs and constraints. As a result, the emphasis has shifted toward more targeted and impact-driven activities, requiring us to reassess and reprioritise our efforts in these initial areas accordingly. In particular, MaX has now refocused its efforts on broadening access to training materials by providing a training booklet, which aims to serve as a knowledge hub for the community of code users. Additionally, outreach strategies have been adjusted to emphasize more direct, impactful engagement with our audiences. While the virtual exhibit and holographic design were originally proposed, these initiatives were ultimately removed from the plan. Instead, MaX now prioritizes active participation in public outreach events. These include Research to Business (R2B) and Research to Industry (R2I) events, where MaX partners can engage with businesses, industry leaders, and investors to foster knowledge transfer, technology commercialization, and collaboration between academia and industry. This shift aligns more closely with the evolving mission of MaX, focusing on providing practical, accessible resources and fostering strong connections with the broader community.

In the present deliverable, we are able to fine-tune our strategy and ensure it is even better aligned with the MaX mission and the overarching objectives of the EuroHPC Joint Undertaking. This refinement enables us to enhance our outreach, maximize impact, and more effectively engage with our key target audiences. In particular, we highlight a few key changes and improvements (coloured in light blue) introduced in this final version that will guide us for the next two years of the project:

D 6.1 - MaX communication, exploitation, and dissemination Plan – First version	**D 6.3 - MaX communication, exploitation, and dissemination Plan – Final version**

Pillar 1. Stakeholder engagement *Action: Proactive content generation*	**Pillar 1. Stakeholder engagement** *Action: Proactive content generation*
10 Twitter posts per month	4 BlueSky posts per month
Rationale: MaX reduced its activity on X, due to several ongoing concerns about the platform's direction, and launched a BlueSky account, as this platform seems to better align with the values of our scientific community. On BlueSky we are maintaining a presence but avoiding high posting frequency (4 posts per month). We are doing so to conserve resources, as it's unclear if BlueSky will gain enough traction to justify greater effort. Until we see clearer signals of sustained user growth and engagement on the platform, we prefer to focus our energy on LinkedIn and YouTube, where returns are more certain.	
Pillar 1. Stakeholder engagement *Action: Joint communication strategy*	**Pillar 1. Stakeholder engagement** *Action: Joint communication strategy*
- -	At least 6 yearly contributions on the HPC in Europe Portal. At least 6 yearly contributions to the CASTIEL2 Social Media Content Plan.
MaX has increased its efforts in communication and dissemination activities within the EuroHPC CASTIEL2 project. In particular, for the next two years, MaX is committed to contributing at least six times per year to the 'HPC in Europe Portal', a key initiative within CASTIEL2 aimed to centralize and promote information about the objectives, outcomes, and milestones of the CoEs and NCCs. Additionally, MaX is also contributing at least six times per year to the CASTIEL2 Social Media Content Plan for CoEs, to expand the digital presence of CASTIEL2. Through these joint initiatives, MaX helps to disseminate news, updates, and results beyond its own communication channels, reaching wider European and international audiences.	

D 6.1 - MaX communication, exploitation, and dissemination Plan – First version	**D 6.3 - MaX communication, exploitation, and dissemination Plan – Final version**

Pillar 2. Training and Education *Action: Partnering with pre-grade educational institutions*	**Pillar 2. Training and Education** *Action: Broadening access to Training*
Materials curated to be used by teachers in high school classrooms.	Training booklet for the community of code users.
> 50 documented uses by the end of the project.	> 50 downloads by the end of the project.
Rationale: Based on the current needs of the EuroHPC JU, we have shifted towards broadening access to training by providing a training booklet for the community of code users. This adjustment helps us ensure the dissemination of the training material related to the MaX codes and the creation of a "knowledge hub" for the community of users.	

D 6.1 - MaX communication, exploitation, and dissemination Plan – First version	**D 6.3 - MaX communication, exploitation, and dissemination Plan – Final version**
Pillar 3. Communication, Exploitation, and Dissemination *Action: Exploring innovative outreach approaches*	**Pillar 3. Communication, Exploitation, and Dissemination** *Action: Citizens awareness and Public Outreach*
- Virtual exhibit about MAX (creating a virtual exhibit about MAX in a devoted MetaVerse). - Analytics report on exhibit usage	Removed.
Pack of outreach materials delivered. Pack of outreach materials showcased in 8 outreach events by end of project.	Participation in at least 8 science outreach events by the end of the project. Outreach material showcased at public events.

- Holographic design produced. - Holographic design displayed at least 2 international events by the end of the project.	Removed.
Rationale: Over time, our approach to Citizens awareness and Public Outreach has evolved to focus on more direct and impactful interactions with our target audiences. Initially, we explored innovative outreach approaches, such as a virtual exhibit in the Metaverse and a holographic design, but these were ultimately removed due to shifting priorities and effectiveness considerations. Instead, we have prioritized active participation in Public Outreach, Research to Business (R2B), or Research to Industry (R2I) events, appealing for the MaX consortium to bridge the gap between science and society.	

12 Report on activities performed within M30

A report on the activities performed within M30 will be thoroughly described in the Second Periodic Report (submission due in M32) and presented at the annual review meeting scheduled in September 2025.

13 Conclusions

The updated CED Plan reflects the maturity and evolution of the MaX Centre of Excellence in its third phase. Built upon the achievements of the previous phases, and the first two years of practical experience, the current Plan now aligns more closely with the strategic objectives of the EuroHPC Joint Undertaking and the needs of the European HPC ecosystem. Through the continued development of its lighthouse codes and advanced workflows, MaX remains at the forefront of exascale computing. This success is reflected in our CED Plan, as the proposed actions are distributed along the two axes of MaX: *"Software for next-generation computing"*, and *"Enabling scientific advances to address global industrial and societal challenges"*. Our CED strategy fully involves all WPs through effective internal coordination and smooth information exchange. Regular collaborations with other CoEs, NCCs, and CASTIEL2 help us further strengthen our reach and visibility within the European HPC landscape. Ultimately, the proposed CED Plan provides a roadmap for maximizing the scientific, technological, and societal impacts of the MaX project, to ensure its legacy continues to support the European leadership in computational materials science.