D8.4 – Dissemination, Exploitation and Communication (DEC) plan

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Glossary

Acronym	Explanation
BIM	Business and Innovation Manager
CA	Consortium Agreement
ER	Exploitable Result
GA	Grant Agreement
RACE	Reach, Act, Convert, Engage
KPI	Key Performance Indicator
POS	Public Outreach Strategy
HPC	High Performance Computing
SME	Small Medium Enterprise
HPDA	High Performance Data Analytics
EPI	European Processor Initiative
BDVA	Big Data Value Association

Executive Summary

The **ACROSS** (HPC BIG D**A**TA ARTIFI**C**IAL INTELLIGENCE CROSS STACK PLATFO**R**M T**O**WARD**S** EXA**S**CALE) project will build **an Exascale-ready, HPC and data-driven execution platform**, supporting modern **complex workflows mixing HPC, BD and AI high-level tasks**, by leveraging on an **innovative software environment** running upon advanced **heterogeneous infrastructural components** (including GPUs, FPGAs and neuromorphic processors), as well as innovative smart resource allocation policies and job scheduling algorithms, up to the management of tasks inside jobs (pipelines, DAGs).

Position of the deliverable in the whole project context

The deliverable D8.4 is linked to WP8 "Enabling Integrated Validation and Value Creation Adoption" focusing on demonstrating and promoting the ACROSS concept, engaging target-sector (and beyond) stakeholders and effectively enabling value creation adoption for strengthening EU's capacity in addressing appropriately key challenges related to HPC, Big data, AI integration. The D8.4 is in relation to the Milestone 1 "Awareness of project objectives and requirements" regarding the "communication plans" part with the due date in M6.

In Figure 1, WP8 is dedicated to analyse the impact of the ACROSS project on an ongoing basis to ensure the success and relevance of the final system. Each WP is contributing to the WP8 in order to maximise the impact of the project.

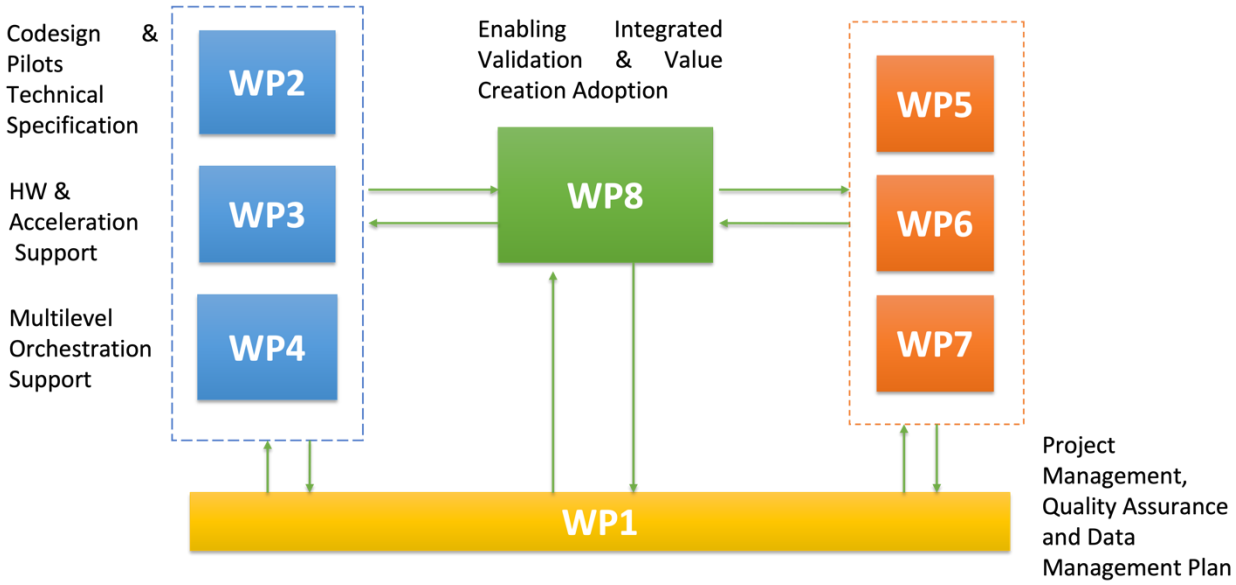

Figure 1 WP8 position inside ACROSS project

Description of the deliverable

This document is to report the direct outcomes made by the Task 8.3 "Dissemination, Exploitation and Communication" during the period from M1 to M6 (March 1, 2021 - August 31, 2021). It identifies and organizes the communication channels to be used and the dissemination activities to be performed within the ACROSS project to reach the targeted groups. It also describes the general guidelines adopted by the consortium for exploitation and identifies the planned exploitable results of all consortium members.

This document also details the quantitative and qualitative measures and will serve a basis to track and monitor planned dissemination, exploitation and communication results in order to assess the effectiveness of the planned activities, so as to enable the consortium to take corrective actions if needed. Progress on dissemination, exploitation and communication will be included in reports on dissemination, exploitation, and communication activities (D8.5, D8.9).

This document is relevant as of month 1 or the project (starting date 01/03/2021) and till its end in month 36 (ending date 28/02/2024). It would be updated during the project lifetime (M18 and M36), according to the actual outcomes of the research and industrial activities performed by the consortium members.

All partners are expected to contribute to dissemination, exploitation and communication activities in order to create the impact of the project.

1 Introduction

1.1 Scope and objectives of the deliverable

The aim of this document is to define the Dissemination, Exploitation and Communication (DEC) plan including the strategy to be used, the methods and activities to be carried out and quantitative and qualitative measures to be applied for each of the following three core topics to boost the impact creation of the ACROSS project:

- Dissemination Key Elements
- Exploitation Key Elements
- Communication Key Elements

1.1.1 Context

ACROSS has the obligation to both exploit and disseminate the results of the project.

According to "Article 28.1 Obligation to exploit the results" of the Grant Agreement [RD.1]:

Each beneficiary must — up to four years after the period set out in Article 3 — take measures aiming to ensure 'exploitation' of its results (either directly or indirectly, in particular through transfer or licensing; see Article 30) by:

- *using them in further research activities (outside the action);*
- *developing, creating or marketing a product or process;*
- *creating and providing a service, or*
- *using them in standardisation activities.*

According to "Article 29.1 Obligation to disseminate results" of the Grant Agreement [RD.1]:

Unless it goes against their legitimate interests, each beneficiary must — as soon as possible — 'disseminate' its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium).

1.2 Methodology

The devised methodology ensuring the definition and execution of the ACROSS DEC plan covers the following activities:

- WP8 audio calls on a regular (weekly) basis
- tools' creation to collect and to pilot the dissemination and communication events
- creation of exploitable results' table for involving all the partners to provide the project exploitable results
- creation of ecosystem mapping table for providing relevant stakeholders for further maximizing the project's impact
- exploitation of business model canvas and other tools

1.3 Related documents

ID	Title
[RD.1]	Grant Agreement No 955648
[RD.2]	Consortium Agreement

2 ACROSS Dissemination & Communication

Dissemination and communication activities are of primary importance for guaranteeing the success of the project all along its life cycle. Dissemination concerns the public disclosure of the project outcomes in any medium. Although it may mostly appear as passive, it is a fundamental activity for attracting the stakeholders. From this perspective, the dissemination action aims at promoting and raising awareness since the starting phase of the project, by making research results and development outcomes known to various groups including research peers, industry, policy-makers and other commercial actors. In addition, this activity aims at enabling such actors to use and exploit project results in their own research activities and projects. On the other hand, communication means taking strategic and targeted measures for promoting the action itself and the related results to a variety of audiences. As such, communication also aims to reach out to society, here seen as a whole, by demonstrating how the EU funding contributes to tackling societal challenges.

The following subsections detail the ACROSS Dissemination and Communication activity plan, describing the Public Outreach Strategy, the specific dissemination and communication planned actions and the targeted audiences.

2.1 ACROSS Public Outreach Strategy

The purpose of this dissemination and communication strategy is to serve as an instructional plan towards the activities relating to raising awareness, informing stakeholders and disseminating the results of the ACROSS project. The ACROSS public outreach strategy (POS) is the crucial first step into building the ACROSS community. Its purpose is to introduce guidelines for the involved stakeholders, partners and general public on how the ACROSS community will be created and managed during and after the project lifespan.

Moreover, relevant influencers (e.g HPCwire, insideHPC, HiPEAC) will be identified and approached in order to create meaningful connections and build credible, third party endorsement. In the Table 1 are listed some possible influencers, by M9 a detailed list will be defined.

Influencer	link	Publication Frequency	Followers	Country
HPCWire	https://www.hpcwire.com/	30 posts / week	Facebook 2.8K · Twitter 16.8K	USA
insideHPC	https://insidehpc.com/	22 posts / week	Twitter 14.4K	USA
HiPEAC	https://www.hipeac.net/news/#/blog/	4 posts / month	Twitter 2.8K	EU

Table 1 Examples of identified influencers

The POS will outline a 4-step methodology, which describes why, what, to who and how to communicate and disseminate. The POS is a living document and will be updated constantly based on activities that will be undertaken during the whole duration of the project. The updates of the POS related to priorities, goals and KPIs will be included in the Deliverable D8.5 “Report on dissemination, exploitation and communication activities” that will be released on M18 and M36.

The POS will focus on the following steps and definitions:

1. Why to communicate and disseminate? – Definition of objectives and KPIs. In subsection 2.2.1 has been described the dissemination objectives while in subsection 2.3.1 has been described the communication objectives. For both communication and dissemination the related KPIs are listed in the Table 6 in subsection 2.3.5 in and Table 4 in subsection 2.2.4.
2. What to communicate and disseminate? – Definition of key messages to be sent based on the identified target audience and during the different stages of the project. The communication and dissemination strategy have been described in sections 2.2 and 2.3.
3. To whom to communicate and disseminate? – The definition of target audiences and stakeholders and grouping them based on specific characteristics is crucial in order to have an effective

dissemination and communication plan. The dissemination and communication stakeholders and target audience have been described in subsection 2.2.2.

4. How to communicate and disseminate? – Based on the stakeholders analysis has been identified the relevant tools, channels and implementation aspects to be considered in order to reach the identified audience properly, In subsection 2.3.4 have been described the communication and dissemination tools that will be used during the project.

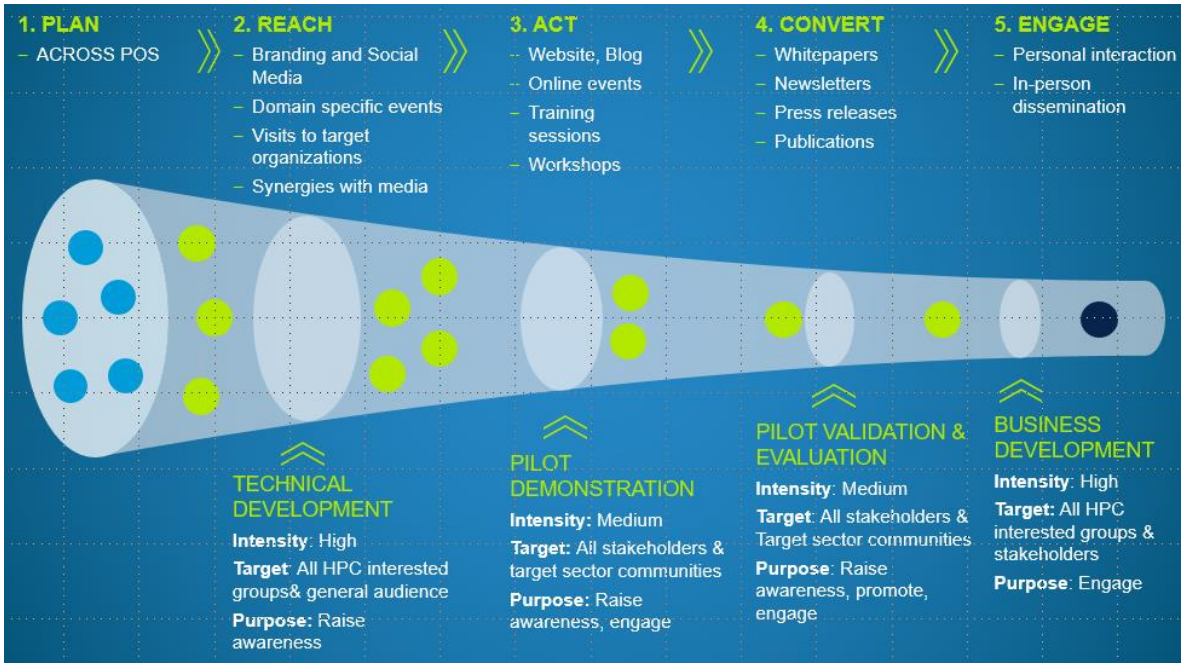

Figure 2 Key dissemination & communication activities, channels and target groups

The ACROSS POS strategy is based on multi-channel RACE framework[1] (see Figure 2). Each stage of the RACE framework is explained in more detail and how it will be used in ACROSS' dissemination and communication strategy:

- REACH - This is the awareness stage where ACROSS will focus on activities that will drive to reach the target audience (HPC interested groups and general audience) online through branding and social media, domains specific events and fairs, visits to targeted organizations and synergies with media. This phase will have an approach-oriented content, for the establishment of the ecosystem of stakeholders, aiming to ensure wide project presentation on objectives. Raising awareness is a continuous activity that will be deployed all along the project lifespan.
- ACT - This stage is where ACROSS will encourage the visitors (all stakeholders and target sectors communities) to interact with or take an action when they land on the ACROSS website page or social media pages. It is the first stage of engagement before moving them to final conversion. This will be achieved by participating to online events, workshops, organizing training sessions.
- CONVERT - This is the stage where ACROSS stakeholders (all stakeholders and target sector communities) will converted from stakeholders who interact to stakeholders that will be reached directly by sending newsletters, whitepapers, press releases and publications. This stage is not only related to raise awareness but also promote the ACROSS activities and engage the stakeholders.
- ENGAGE - In this phase, the focus is to build long-lasting relationships with the stakeholders (all HPC interested groups and stakeholders) in order to build loyalty. This will be done by personal interaction and in-person dissemination activities.

As previously described, ACROSS will adopt a cross-country and multi-channel dissemination and communication approach by focusing on in-person dissemination, online dissemination, and off-line dissemination.

[1] https://www.smartinsights.com/race-planning-framework/

2.2 ACROSS Dissemination Strategy

The dissemination strategy and dissemination activities follow principles and best practices successfully tested by the partners and in line with the EC Guidelines for successful dissemination. ACROSS Dissemination strategy is based on Public Outreach Strategy (POS), a 4-step methodology which describes why, what, to who and how to communicate and disseminate. The awareness of dissemination objectives and KPIs (*why to disseminate*), the identification and mapping of targeted stakeholders (*whom to disseminate to*) and understanding of their needs and characteristics, allows to tailor clear and concise messages (*what to disseminate*) to the different target audiences. This also comes to ensure the use of the most appropriate and efficient dissemination channels and communication tools and drive the development of proper material for targeted stakeholders (*how to disseminate*).
An additional step concerns the time plan, i.e., the definition and planning of dissemination activities. As dissemination activities involve all ACROSS partners, it is important to have a global view of the possible opportunities, in order to coordinate the effort of partners and to ensure consistency. To this aim, section 2.2.3 provides the planned dissemination activities and will be constantly updated during the project.

2.2.1 Dissemination Objectives and Outcomes

Dissemination means sharing research results with potential users, to promote and facilitate the use of the project results. ACROSS dissemination strategy refers to particular target audience that can uptake and potentially use the ACROSS results in their own work. Leveraging in particular on the universities and research centres within ACROSS Consortium, the dissemination will target main international conferences, scientific journals and events, including training sessions. Moreover, ACROSS actively cooperate with European initiatives as EUROHPC JU, ETP4HPC, BDVA, EPI, and PRACE, to foster a close integration with major European initiatives concerning HPC and HPDA.

2.2.2 ACROSS target audience

The effectiveness of the dissemination activities is strongly related to the capability of intercepting the right audience. From this perspective, different types of dissemination activities may have a different audience to be targeted. Section 2.2.3 details more on the planned dissemination actions; these fall in two main groups: scientific dissemination through publishing journals, book and book chapters, conference and workshop papers on one side, and attending high-profile networking events on the other side. Both these two are generally characterized by a strong presence of academic and industrial representatives, which represent thus the scientific community. Looking more closely to the planned dissemination actions (see section 2.2.3), ACROSS consortium expects to target a well balanced audience composed of academic researchers and industrial representatives, target sector stakeholders, HPC communities, media and general public (see Table 2).
Depending on which category the dissemination activity will belong to, the action will be tuned more towards off-line or in-person dissemination, in order to maximize the impact of the dissemination activity. In the Table 2 are shown the main stakeholders and target audience identified and the messages will be sent.

Stakeholders and target audience	Principal Needs	Key messages
Target sector related to end users communities (e.g aeronautics market, farming communities)	Improve the effectiveness of their work by leveraging the use of new technologies	ACROSS advancements in HPC-enabled technology offer valuable solutions designed for you, allowing to maximise the effectiveness of your work
Target sector related to technologies and/or service providers (industry verticals) dealing with aeronautics, energy, carbon sequestration and weather sectors.	Improve the existing workflows in order to gain competitive advantages.	ACROSS HPC advancements can improve currently established workflows, offering a strong competitive advantage and leading to dedicated solutions (Service applications, products) of better value for you and your customers.
HPC Communities	Having an Exascale ready platform supporting modern and complex workflows	ACROSS offers an Exascale ready platform supporting modern and complex workflows including HPC, HPDA and ML/DL tasks by leveraging both hardware and software advancements for optimized resource utilization and energy efficiency.

Academic and research communities (other EuroHPC projects, ML, DL, Big Data and HPC research communities)	Having access to state of the art research related to HPC, Big Data and AI aspects in an Exascale ready platform and also in resource allocation, job scheduling, HPC infrastructures.	ACROSS project is a highly ambitious research initiative, fully aligned with EuroHPC vision, that fosters innovation and value creation through: i) mixing HPC, Big Data and AI aspects in an Exascale ready platform; and ii) advancing the current state of the art in terms of resource allocation, job scheduling, infrastructures used, etc.
Media	News on new technologies and their societal and industrial impact for Europe.	ACROSS is a game changing H2020 project generating innovation and bringing great benefit to sectors of societal and industrial value for Europe through the exploitation of HPC-enabled workflows.
General Public	Be aware of how HPC-related technologies can bring benefits for the European science, industry and citizens.	ACROSS is a project that effectively boosts European HPC capacity and alongside demonstrates in key application areas the economic and societal HPC-related benefits for European science, industry and citizens.
Policy Makers	Be aware of the test technological developments, define synergies, express current and future needs, and participate in shaping the future of European supercomputing.	ACROSS is a game changing H2020 project, which includes two supercomputing centres that may influence the European policy makers by raising awareness on the project by underlining its significant added value to sectors of societal and industrial relevance fro Europe.

Table 2 Key target audience

2.2.3 Planned Dissemination Activities

Since the initial phase of the project lifetime, the ACROSS consortium has carefully planned the actions for disseminating. Dissemination activities are aimed at maximizing the impact of the innovation and developments carried out in the project, also providing a solid foundation for a successful exploitation phase. As such, the actions fall in three main categories:

- Online Dissemination- will be undertaken firstly, through the ACORSS Website (see subsection 2.3.4.3) that is the central hub for the dissemination efforts. In the website will be published news, blog post and call-to-action activities (e.g., videos, demo). The content will be cross promoted also into the ACROSS social media accounts. The content will be provided also to the identified influencers in order to have third party endorsements and increase credibility. All the partners will also be engaged through their channels including social media. SINTEF will use the Open Porous Media (OPM) web site and mailing list for communicating results to potential stakeholders and publish the OPM software improvements on GitHub. Also DELTA will make available the updated and improvements on the WFLOW codes in the user-community through the WFLOW GitHub page. NP will promote the project results not only through its online channels (company's website, social networks) but also on national domain specific media portals. Also summary of CINI's activities will be shared on the social media channels of the University of Florence and dedicated ResearchGate page. The detailed plan of the dissemination activities for each partner is presented in Table 3.
- Offline dissemination - Research dissemination will be pursued by project partners in high profile scientific journals, books (or even single book chapters), conferences and workshops where to publish research results (see Table 3). Will be developed also a dedicated branding media-kit offering data-driven, targeted insights to drive market (e.g., logo, brochures, posters) see subsection 2.3.4. Moreover, will be developed dissemination material and white papers press releases explaining the substantial value of highly innovative solutions in the target sectors. Coinciding with the project milestones will be distributed newsletters on an ongoing basis (see subsection 2.3.4.8 and 2.3.4.7).
- In-person dissemination - ACROSS partners will participate in high-profile networking events where the ACROSS consortium can intercept the interest of potential stakeholders (see Table 3). These events will offer networking and in-person industrial dissemination opportunities to reach the stakeholders and engage them in constructive conversations. During these events ACROSS partners will organize specific workshops, booths and present the key project findings. ACROSS partners will leverage existing professional networks and associations such as ETP4HPC, BDVA, JLECS, HiPEAC, AIOTI and their existing professional network to share and promote the project. Different follow up dissemination activities will be arranged to appeal different levels of needs and interest (e.g., by organizing webinars, training sessions and demos). NP plans to take advantage of having established

a direct access to 70 Agricultural Cooperatives with >151K farmers in Greece. ACROSS results will also be disseminated to public sector entities and policy makers through targeted in person communication.

Publishing scientific and technical results on journals allows to easily get in touch with the relevant scientific community; moreover, it allows to receive feedbacks on the specific points of interests that can be used to drive the evolution of the ACROSS outcomes. To this end, it is important to define in advance a plan for regularly attempting to present project progresses and results over the whole project lifetime. Similarly, workshops and conferences offer a regular basis for presenting project results and progresses and receiving feedback on the design choices made and the implementation done. To this end, the ACROSS consortium plans to target very high-quality venues, which guarantee a peer-review process of high quality. Unlike journals, workshops and conferences offer a more dynamic and interactive way of presenting the project outcomes: on one hand, such outcomes are described within a paper structured in such a way to well motivating the presented work, describe it and showing the results; on the other hand, works are generally presented on invited talks associated to the conference/workshop, so, direct interaction with people in the scientific community is possible.
Conference and workshops, as well as other events (fairs, etc.) becomes of worth for the dissemination activities, since they offer a way of enlarging the network of potential stakeholders.
To support all these actions, ACROSS planned the dissemination activities on a yearly basis, spanning on the whole project lifetime: a shared document has been created and made circulating among the partners to collect the foreseen events where to disseminate (this document acts as the basis for the dissemination plan as reported in the Table 3). A second shared document has also been created in order to progressively mapping the attended events from each partner, as well as to track all the scientific papers published at conferences, workshops, journals or being part of a book. The aim of this document is to keep track of the evolution of the dissemination actions, and by means of a periodic analysis, deriving eventual corrective actions if the measured impact of the dissemination is not aligned to the actual result expectation.

Training sessions will be held and foresee the contribution of many partners.

- IT4I will contribute to the preparation and organization of tutorials and seminars in order to disseminate the project outcomes.
- AVIO Aero will share results and technical practices with the Technology Development Community (TedCom) and with the Italian and European Universities and Research Centres interconnected to AVIO Areo in order to develop innovative technical solutions for next generation aeronautical engines.
- CINI will conduct a dedicated lecture that will be given during the Summer school ART (Advanced research Turbo machinery) organized by the University of Florence.
- CINECA will manage specific training requests adapting the structure and content of the courses to the profile and needs of the applicants. This aspect is of fundamental importance in view of the computational applications of the Exascale class (which is estimated to be possible starting from 2021/2022). Besides traditional lectures, many other initiatives attract young promising scientists to CINECA to spend short or extended visits under the mentoring of CINECA's experts, who help them to maximize the output of their research or enhance their expertise in HPC techniques. CINECA takes part also in Summer of HPC (SoHPC), a PRACE initiative offering young University students from all over Europe the chance to intern at major computer Centres. CINECA is one of the PRACE Advanced Training Centres (PATCs), commissioned by PRACE to provide top-level training to European researchers on the various topics of HPC and computational sciences.

A detailed report related to the Training Sessions will be included in D8.5 "Report on dissemination, exploitation and communication activities" on M18.
Table 3 reports the envisioned dissemination plan. As the reader can see, ACROSS consortium target to attend very-high level events and to publish on well-reputed journals, conferences and workshops, in order to maximize the chance of intercepting the largest group of stakeholders. Some of these events are set on regular basis (e.g., HiPEAC conference and workshops, International Conference for High Performance, Networking, Storage and Analysis, ISC High Performance, etc.), and they represent well established "historical" events proved to be rewarding in terms of visibility and opportunity to catch relevant stakeholders.

Conferences/ Events/ Journals	Type	Year	Topic	Partners
HPC-IODC	Workshop	2021	HPC and Cloud convergence and the influence on HPC workflow and dataset management	LINKS
HiPEAC (main conference)	Conference	2022, 2023, 2024	High-Performance Computing, Artificial Intelligence, Cloud technologies	LINKS
Workshop on Heterogeneous and Low-Power Data Center technologies (HeLP-DC)	Workshop	2022, 2023, 2024	High-Performance Computing	LINKS
ACM Transactions on Architecture and Code Optimization (TACO)	Journal	2021, 2022	High-Performance Computing	LINKS
ISC High Performance	Conference	2021, 2022, 2023	High-Performance Computing	LINKS,IT4I, MPI-M
Teratec	Conference	2021, 2022, 2023	High-Performance Computing	ATOS, IT4I, ECMWF, INRIA
SC - The International conference on High Performance Computing, Networking, Storage and Analysis	Conference	2021, 2022, 2023	High-Performance Computing	IT4I, CINECA,LINKS
International CAE Conference and Exhibition	Conference	2021, 2022	Engineering simulations	CINECA, AVIO,MORFO
ASME Turbo Expo	Conference	2022, 2023	Turbomachinery	AVIO, CINI, MORFO
European Conference on Turbomachinery Fluid Dynamics and Thermodynamics (ETC 15, Budapest 2023)	Conference	2023	Turbomachinery Fluid Dynamics and Thermodynamics	AVIO, MORFO
EGU General Assembly 2022	Conference	2022	Geoscience	MPI-M
GMD	Journal	2024	Geoscience and modeling	MPI-M
Workshop on high performance computing in meteorology	Workshop	2021, 2023	High-Performance Computing and Weather Forecasts	ECMWF
AMS Annual Meeting	Conference	2022, 2023, 2024	Turbomachinery	ECMWF
Enabling the HPC and Artificial Intelligence Cross-stack Convergence at the Exascale Level	Book	2021	Book on convergence between HPC, Cloud, Big-Data and Artificial Intelligence (Book Title: HPC, Big Data, AI Convergence Toward Exascale: Challenge and Vision)	LINKS, IT4I

Internal dissemination meeting on ACROSS pilots and HPC related topics	Other	2022, 2023	Aeronautical combustor and turbine optimization via numerical simulation	AVIO
ACM International Conference on Computing Frontiers	Conference	2022	18th ACM International Conference on Computing Frontiers (CF '21)	CINI
Journal paper about UTHERM3D validation on laboratory test case	Journal	2022	Aeronautics	CINI
JLESC international Workshop on Extreme-Scale Computing	Workshop	2022, 2023	HPC, Cloud Computing and AI.	INRIA
IEEE Cluster	Conference	2022, 2023	Technological developments in the field of cluster computing	INRIA
OPM Meeting	Workshop	2022	OPM Flow for CO2 sequestration	SINTEF
GAIA Congress	Event	2022, 2023	Annual event organized by GAIA Epicheirein, focused on new developments in the farming sector	NP
AGROTICA	Event	2022	One of the largest exhibition brands in the agriculture sector in the Balkan and the European markets	NP
Ypaithros Chora Journal & portal	Other	2022, 2023	Greek portal and newspaper focused on providing news for the farming communities	NP
ACROSS event at the European Parliament	Event	2022	Dedicated event for networking and lobbying at EU / international level	NP in collaboration with the rest of the consortium

Table 3 Planned dissemination activities

2.2.4 Evaluation: Key performance indicators and measurements

Evaluating the effectiveness of the dissemination actions requires to define key performance indicators (KPIs) and establish a mean of verification for these KPIs. In Table 4, there are the two main KPIs defined for the progress analysis of the dissemination activities. These two KPIs cover both the publications on journals, conferences/workshops and books (or single book chapters), and the training session done by the ACROSS consortium. Minimum target (as updated at M6) of 15 publications and 6 training sessions over the project lifetime have been established as enough for a 'good' dissemination action. To keep track of the overall progresses made, partners will report their dissemination and training session results on a regular basis.

Dissemination channel	KPIs and means of verification
Peer-reviewed publications in journals, conferences and workshops.	>15 (Partners' regular reporting)
Training Sessions	>6 in person/ online training sessions

Table 4 Dissemination Key Performance Indicators

2.3 ACROSS Communication Strategy

"Communication means taking strategic and targeted measures for promoting the action itself and its results/success to a multitude of audiences, including the media and the public, and possibly engaging in a two-way exchange." (Source: [1]).
The purpose of the ACROSS communication activities is to promote the project and the benefits of its activities, opening to multiple audiences, beyond the project's own community. To reach a wider audience and in general the public, communication activities must be performed in a way that they can be understood by non-specialists. Furthermore, technical details will be delivered through scientific dissemination but also engaging talks with people interested in the project activities during in-person live events, online events and through the blog in the website.
Particular attention is also given to social networks. ACROSS communication team is sensible to the main objectives of the project, represented by the pilots, and possible connections with external events will be done to enlarge the audience and draw attention. An example of this approach is represented by the Figure 3.

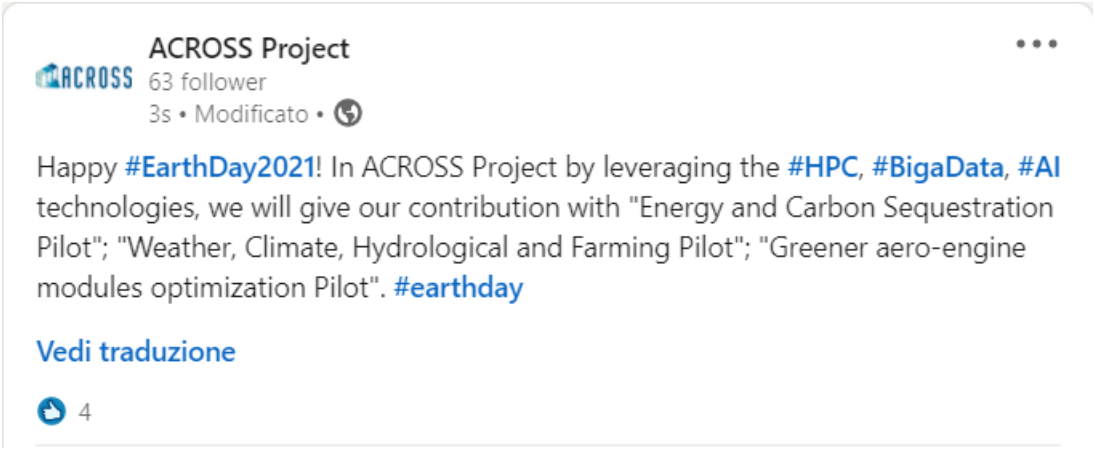

Figure 3 Post example

For the Earth day, in the ACROSS social network pages we published a post concerning the contribution this project (with its three pilots) is providing to the green revolution.

ACROSS communication strategy is following the Public Outreach Strategy (POS), similar to the dissemination strategy. Several activities already reached a good level of maturity (e.g. ACROSS website) and the main communication activities have been planned and defined.

2.3.1 Communication Objectives and Outcomes

The overall objective of the communication activities is to ensure a systemic promotion of the project's activities among all the stakeholders. The specific objectives are:

- Undertaking actions that will pave the way to broad dissemination and communication of the project scope, activities and results;
- Setting up and maintaining a project website for public communication, dissemination and information;
- Creating the good conditions (following the public outreach strategy which dictates communicating the right messages, to the right audiences through the right channels at the right timing) in order to facilitate the interactions with the stakeholders;

- Identify, reach, and engage with stakeholders;
- Improve fruitful synergies and internal communication between the work packages (WPs);
- Drive and support innovation in the HPC adoption;
- Make the produced knowledge more accessible, inclusive, and actionable;
- Facilitate interaction and feedback/input on our work;
- Improve press & media relations.

2.3.2 Communication through networking

ACROSS established since the very beginning a collaboration with other relevant H2020 projects which share common objectives and/or concepts and will establish contacts with key, members of different EU institutions such as EC's DG Connect, DG Grow.
Since the beginning, actions for establishing an active collaboration with H2020 projects and those resulting from EuroHPC[2] Calls have been set up. Active collaboration is already in place with LEXIS Project[3], while future collaborations are foreseen with other EuroHPC projects (e.g., HEROES[4], eFlows4HPC[5], MICROCARD[6], REGALE[7]).
Will be explored synergies with EuroHPC projects by liaising with the European Consortium Initiative of EPI and with key European technologies providers in order to optimize and widen the impacts of ACROSS work as well as making sure the project results are being used efficiently.
During the duration of ACROSS all the project partners will enhance existing connections with EU bodies and initiatives, including ETP4HPC, PRACE, JLESC, CoEs, BDVA, AIOTI, the EuroHPC's Industrial and Scientific Advisory Board and its Research and Innovation Advisory Group (RIAG).
ACROSS partners will engage with key stakeholder representatives from adjacent target sectors, specifically those that could benefit from the advanced HPC-enabled solutions developed within the ACROSS project. These representatives can be influential regarding broader industrial and societal acceptance of HPC evolution and the associated innovations promoted and implemented within ACROSS.
The ACROSS partners will leverage the External Advisory Board both as a feedback mechanism to determine whether the messages being generated by the project resonate, but also as a channel for qualified communication with other industry thought leaders in the constituencies relevant to ACROSS.

2.3.3 Open Access

Detailed information related to the Open Access Strategy of ACROSS will be given in the Data Management Plan (D1.3 at M6).
ACROSS complies with the "Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020", published by the European Commission and the article 29.2 of the Grant Agreement [RD.1], thus ensuring open access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results.
The public deliverables and the resulted publications will be freely available on the project website and, possibly, on the project partners websites, and open archives.
In particular, ACROSS will follow a combination of Gold and Green Open Access strategy to its scientific outcomes.

2.3.4 Communication Tools

ACROSS will use different communication channels and tools, including online, off-line and interactive (face-to-face) means, in order to achieve an efficient and effective interaction with the different stakeholders. Leveraging the experience and the dynamic interaction of ACROSS partners with their audiences/engaged stakeholders and customers, ACROSS is focused on using specific communications channels that project partners efficiently use for their day-to-day communications with different stakeholders.

[2] https://eurohpc-ju.europa.eu/
[3] https://lexis-project.eu/web/
[4] https://heroes-project.eu/
[5] https://eflows4hpc.eu/
[6] https://microcard.eu/index-en.html
[7] https://regale-project.eu/

Additionally, as required by the article 38.1.2 of the Grant Agreement [RD.1], any communication activity related to the action (including in electronic form, via social media, etc.) and any infrastructure, equipment and major results funded by the grant must:

(a) display the JU logo

and

(b) display the EU emblem

and

(c) include the following text:

"This project has received funding from the European High-Performance Computing Joint Undertaking Joint Undertaking (JU) under grant agreement No 955648. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Italy, France, Czech Republic, United Kingdom, Greece, Netherlands, Germany, Norway."

2.3.4.1 Graphic Identity Logo

Project Identity is important therefore a project logo has been designed and will be used all along the project lifetime. The logo includes the name of the project (ACROSS) –its main concept intends to capture the audience's attention.

Have been designed different type of logo that can be used for different purposes. In Figure 4 are presented the primary logo and the primary logo with tagline. The logo includes a datacentre icon where each box represents one of the project's principal technologies used HPC, Big Data, AI and the acronym of the project which is explained in the version of the logo with tagline.

Figure 4 ACROSS primary logo

In Figure 5 is represented the colour palette used for the logo while the fonts used for the logo is pixochrome (see Figure 6).

Figure 5 ACROSS logo colour palette

Figure 6 Fonts

The primary logo should be used in the following cases:

- In internal and external documents within the framework of the ACROSS project, especially documents for the public and European Commission;
- In Power Point presentations that are used to communicate and disseminate activities carried out by partners within the framework of the project;
- On the ACROSS website and social media accounts.

In the Figure 7 is shown the secondary logo that can be used for posters, rollups etc. where in the icon are explicitly defined the principal technologies used HPC, Big Data, AI.

Figure 7 ACROSS secondary logo

In Figure 8 are shown other different versions of the logo that can be used in all the other cases that are not mentioned above.

Figure 8 ACROSS logo versions

2.3.4.2 Templates

Templates of project deliverables, Power Point presentations, email invitation messages and meeting minutes are available in the project private area on NextCloud.

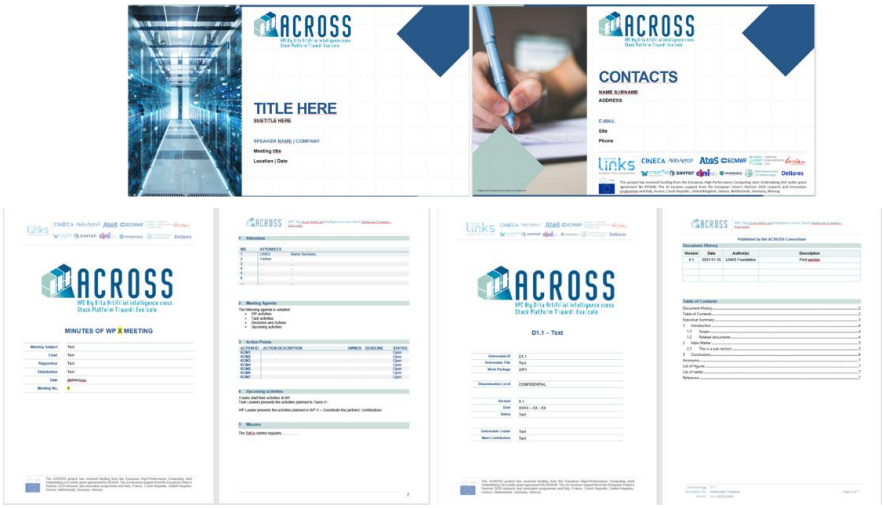

Figure 9 Templates

2.3.4.3 Project Website

ACROSS website is one of the main communication tools of the project. To ensure the maximum visibility for the ACROSS objectives and results, a project website registered in the "eu" domain and with the URL: www.acrossproject.eu has been set up.
The website contains links to the project's social media profiles.

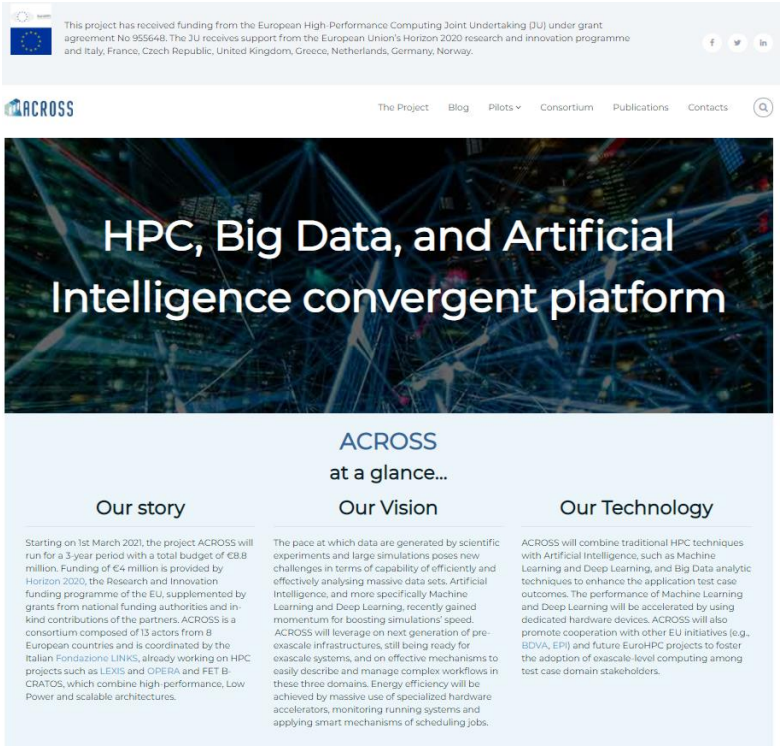

Figure 10 ACROSS Website

The website is used to:

- Provide general information about the project including pilots and partners;
- Enabling the download of project documents, including reports, public deliverables, and presentations.

The website includes a blog session: the blog objective is to publicize both the news and the activities carried out during the project. This information will be regularly updated over the project lifetime. Likewise, each Blog Post will be cross promoted to the ACROSS social networks. In order to allow readers to easily find content on topics following the project's target sectors (i.e., sectors such as weather, climate hydrological and farming, oil and gas, seismic, aeronautics and more) , the blog is segmented into a variety of topics. A range of inbound marketing tactics such as SEO techniques and email marketing are used to ensure that our content reaches the intended audience at appropriate times and based on their intent.

2.3.4.4 Project Leaflet

A project leaflet has been prepared including a short presentation of the project for communication via website and on paper. It will be available at conferences, workshops, seminars etc. that are organised and/or attended by the partners.

Figure 11 Leaflet

2.3.4.5 Project's Private area

ACROSS has a private area based on NextCloud (private cloud) (see Figure 12 NextCloud Dashboard).

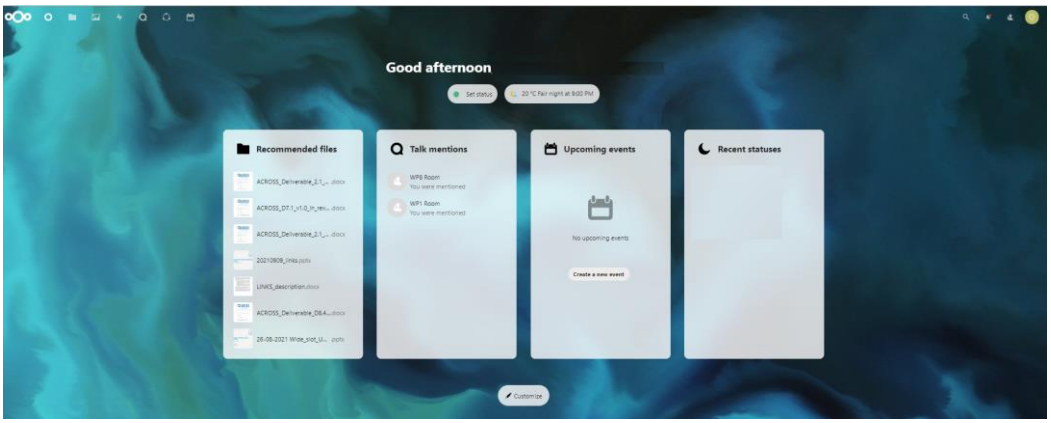

Figure 12 NextCloud Dashboard

NextCloud is organised as shown in Figure 13. Beside the storage section, there are foreseen chat rooms dedicated to each WP in order to allow a fast and efficient communication between the partners. Also, OnlyOffice suite is available to provide a collaborative set of tools for creating documents (e.g., text files, presentations, etc.). The private area is managed by LINKS.

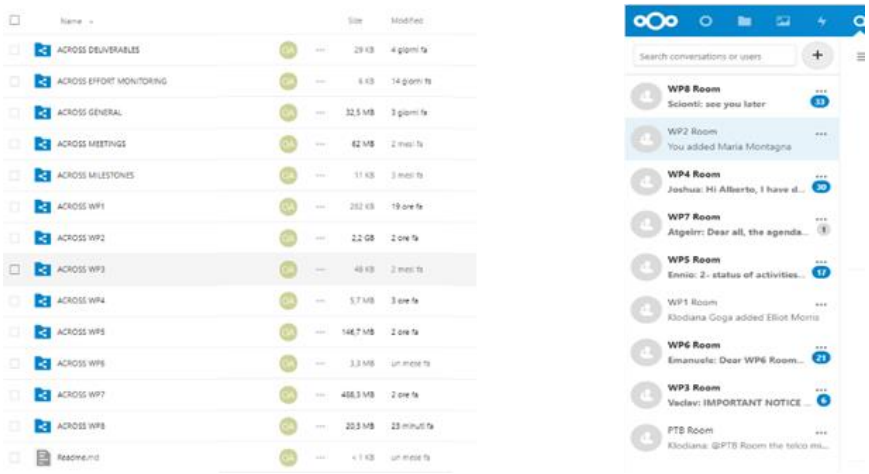

Figure 13 Collaboration Tools

2.3.4.6 Social Media

The use of Social Media is very important for the communication strategy of the ACROSS Project. These permits to reach a wide and targeted audience that will help to maximise the impact and successful exploitation of the project results.

A LinkedIn account (ACROSS Project) #acrossprojecthpc is made available to targeted business-oriented stakeholders and the research community.

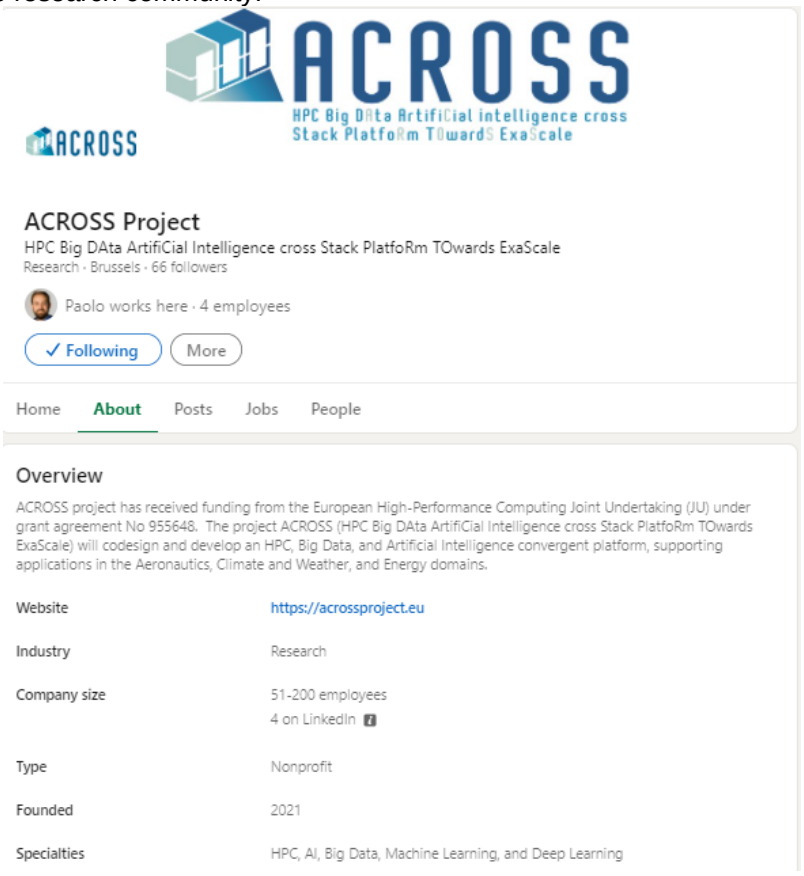

Figure 14 ACROSS LinkedIn

It is also available a Twitter account (@across_project) it is used to share updates on the projects with followers and spread online discussions about the topics touched by the project at the relevant workshops and conferences by using different hashtags and sharing through catchy content.
All of these social media channels will also be used to direct people to the ACROSS website by highlighting new publications, project activities, etc.
LINKS is the responsible partner for social media management, with input collected from all the partners.

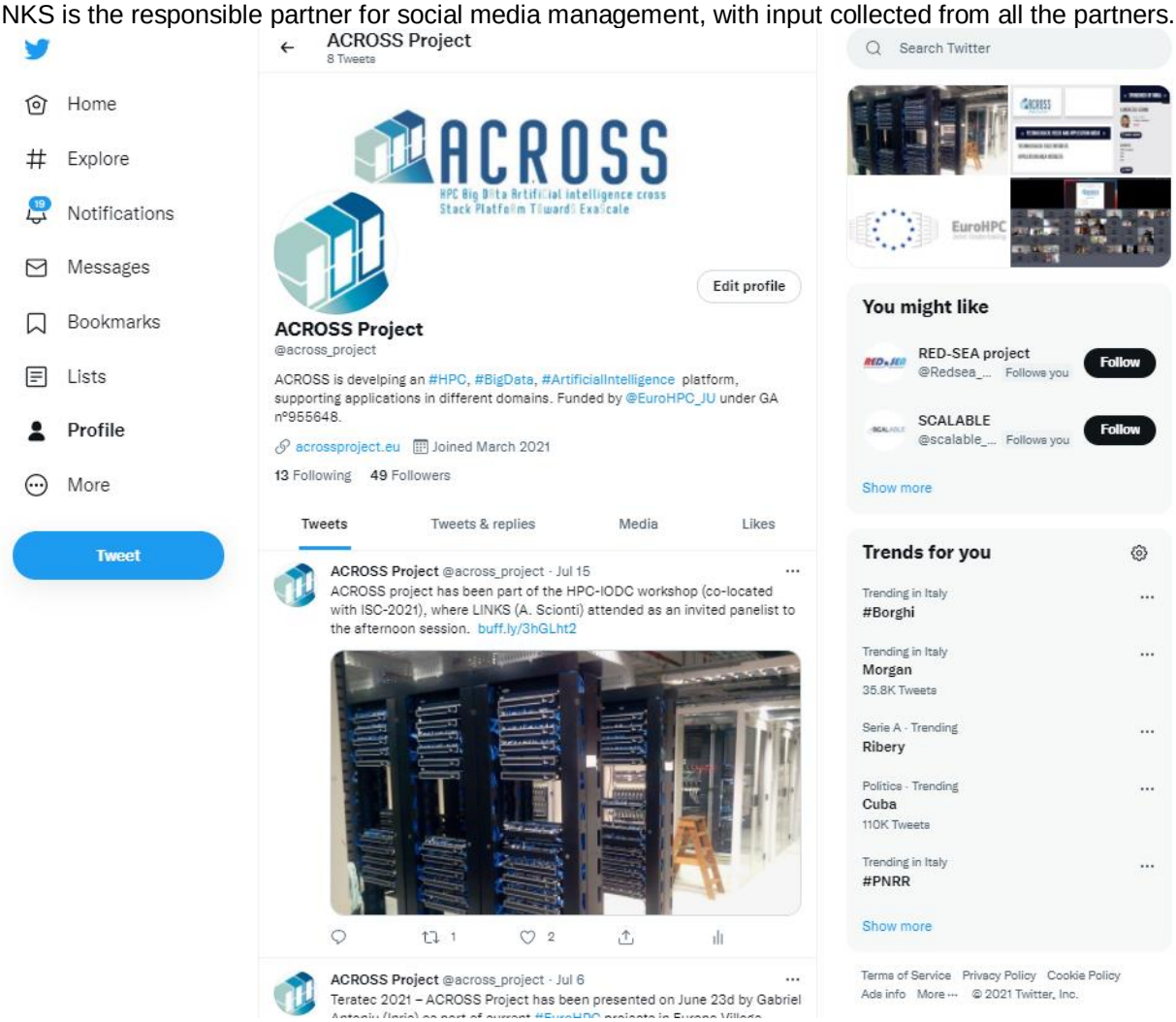

Figure 15: ACROSS Tweeter

There is also available a Facebook Page (@acrossprojecteu) and it is used to gain public interest in technical and non-technical information. This will allow to communicate also with non-professional target groups (other than professional ones), allowing to get their feedbacks over the course of the project lifetime and potentially providing a basis for a long-lasting network beyond project activities and beyond the technical community.

Figure 16: ACROSS Facebook

2.3.4.7 Electronic newsletter

Preparing the newsletters is an activity that generally involve all the partners over the project life-cycle; however, depending on the specific topic and content, specific partners are targeted. Newsletters are published in the project website and social media, but also will be distributed to the consortium members. The newsletters serve as a communication instrument on key updates and developments to the ACROSS ecosystem of stakeholders and aiming to keep them informed and engaged. There is foreseen the publication of:

- Seven newsletters related to main milestone of the projects. The content includes latest developments of the project as well as recent or upcoming dissemination activities; pilot activities deployment and success stories; presentations, workshops and demonstrations; reports, publications and media interest. The planning of the newsletters publication is represented in the Table 5
- Additional newsletters based on specific event/results if relevant.

Month of the Project	Main Partner	Newsletter
M7	LINKS	Newsletter 1 (MS1- Awarness of project Objectives and Requirements)
M10	IT4I	Newsletter 2 (MS2 - ACROSS Key Technologies and platforms specifications)
M16	BULL	Newsletter 3 (MS3 - Alpha Version ACROSS platform and technologies)
M19	NP	Newsletter 4 (MS4 - FIRST pilots use cases integration)
M25	CINECA	Newsletter 5 (MS5 - BETA Version - ACROSS platform and technologies)
M31	AVIO	Newsletter 6 (MS6 - The Final pilots use cases integration, MS7 -FINAL Version ACROSS platform and technologies)
M36	LINKS	Newsletter 7 (MS8 -Awareness of final project foreground, MS9 - Pilots and ACROSS platform final validation)

Table 5 Newsletter Publication Planning

2.3.4.8 Press release

In order to further promote the ACROSS project activities at both broad audiences and more specific stakeholders, press releases will be distributed for publication among national, regional and EU press. The press releases will include specific project activities in order to attract media attention on HPC related topics. All ACROSS partners will promote a continuous cooperation with press and media. All press releases will also be available on the ACROSS project website as well as social media channels.

2.3.4.9 Exhibition material

Various exhibition material and gadgets are foreseen to be used during physical participation to the different events (i.e, conferences, workshops, exhibitions, etc.). In order to promote the ACROSS project despite the Leaflets, the following ACROSS-branded gadgets are going to be used:

Figure 17 ACROSS gadgets

2.3.5 Evaluation: Key performance indicators and measurements

In the Table 6 are represented the ACROSS Communication KPIs updated at M6 of the project.

Communication Tools and Channels	KPIs and means of verification
Project website	>10 K visitors (Google Analytics)
Social Media channels	>1 K visitors social media followers (Accounts data)
Newsletters	7 newsletters (Partners' regular reporting)
Press releases and articles published in nationa/regional/European online media	~30 articles (Partners' regular reporting)
Online events (e.g. webinars, demos)	~10 events (Partners' regular reporting)
European Industry and target-sector oriented events (Industry verticals)	>15 events (Partners' regular reporting)
Specialized blog posts	34 (ACROSS posts within its website)
Printed material (leaflet, brochures, posters and banners)	~1K distributed material

Table 6 ACROSS Communication KPIs

3 ACROSS Exploitation

3.1 Exploitation Strategy

Exploitation is recognized as the key enabler for the success of the ACROSS project. Exploitation is not an after-thought in the ACROSS project: it is embedded in the vision of the project. Hence all partners within the project are aware of and committed to the exploitation of the project results (scientific and commercial) as the focus of research and development proposed in ACROSS. The Consortium Partners with their diverse and complementary Research and Business contexts and capabilities provide all potential exploitation results and routes to bring ACROSS results to all targeted stakeholders and end-user communities.
Morever, ACROSS Business & Innovation Manager (BIM) will take the lead in the development of a general exploitation strategy, including the related business cases. The BIM role will be detailed in the section 3.2.4)

The ACROSS exploitation strategy comprises the following exploitation activities:

1. The identification of the innovative exploitable results and the detailed description of all possible non-commercial and commercial exploitation models;
2. The definition and evaluation of the sustainability and viability of possible business models and alternative solutions that may be followed for the provision of the project solutions and services to the identified stakeholders;
3. The IPR management strategy based on the principles outlined in the project CA which will guide the joint and individual exploitation capabilities of the project partners;
4. The establishment of tactical alliances with other industrial or research organizations that hold the potential of promoting ACROSS results;
5. The involvement of external (not project participants) stakeholders which can benefit from project results (commercial and non-commercial).

Work Package 8 is in charge of following-up the execution of the exploitation plan, and in particular of compiling the exploitation reports.

3.2 Planned Exploitation Activities

Based on the project timeline, the planned exploitation activities are detailed in this section.

3.2.1 ACROSS Individual Exploitation Plans

There are four foreseen individual exploitation plans defined in ACROSS to maximize exploitation of ERs. These four exploitation plans are described in the sections below.

3.2.1.1 Exploitable Results in HPC facilities

This part is about finding effective ways to exploit the advanced HPC solutions of the ACROSS project.

On one hand, supercomputing partners will financially exploit the ACROSS solutions by integrating the technologies at their existing infrastructure (e.g., extension of IT4I's HPCaaS platform, expansion of CINECA's pre-Exascale environment LEONARDO) for serving EU users including industries, public administrations, SMEs, etc.

On the other hand, HPC infrastructure will be exploited for training sessions to enable the international students, research communities and the commercial/industrial sphere to deepening the knowledge about the project (e.g., IT4I's training activities, CINECA's training sessions to more than 600 individuals/year, delivering more than 150 days of training on specific HPC technologies).

The partners working on WP2 (Cross stack convergence & Co-Design for HPC and Data driven HPDA software environment), WP3 (Heterogeneous hardware & acceleration support), WP4 (Multi-level orchestration towards heterogeneous Exascale computing) will be involved in this plan, as well as the supercomputing partners as main stakeholders of this plan.

3.2.1.2 Exploitable Results in ACROSS SW/HW complex workflows

Here is to find new ways to exploit the technologies mixing HPC, AI and Big Data that are going to be advanced within ACROSS. The foreseen plan is:

- Prototypes developed in the ACROSS project will be subjected to an industrial evaluation and validation in order to transform into products and services (e.g., enhancing Atos CODEX AI products suite, LINKS's orchestration tools, extending INRIA's Damaris middleware. CINI's HPC4AI centre). The exploitation can also be carried out through start-ups (ZettaFlow – https://zettaflow.io from INRIA).

- Conducting training at national and international level (e.g., LINKS promoting complex workflow orchestration know-how, CINI's dedicated seminars and/or lectures).

The partners contributing to WP2 (Cross stack convergence & Co-Design for HPC and Data driven HPDA software environment), WP3 (Heterogeneous hardware & acceleration support), WP4 (Multi level orchestration towards heterogeneous Exascale computing) will be involved in this plan to work on this activity while the technology partners will be main stakeholders of this plan.

3.2.1.3 Exploitable Results in ACROSS Marketplace (industry vertical solutions)

The aim of this plan is to a) find effective ways to commercially exploit the advanced vertical solutions that stem out of the project, and b) make the marketplace sustainable after the end of the project.

Prototypes developed in ACROSS project will be subjected to an industrial target sector-specific evaluation and validation (T8.1) in order to transform into products and services, the partners working on industry vertical solutions can exploit the following ideas:

- Direct financial profit based on licensing and IPR (e.g., ECMWF weather products and data portfolio, NP's smart farming "gaiasense" services for supporting farmers in Greece, CINI's U THERM3D tool for AVIO Aero, MORFO's design system – relying on data-centric environment, driven by AI and capable of exploiting advanced HPDA techniques - for turbine applications to be used for AVIO Aero) or other industrial applications wherever aerodynamics plays a key role, like Energy, Renewables, Automotive and Sports;
- Utilisation of the AI/HPC technologies and generated innovation and knowledge to advance research and future products, such as: AVIO Aero's next generation greener and safer aeronautical engines for Boeing and Airbus in 2025+ Technology roadmap, allowing reduced fuel consumption, low emissions, extended durability, DELTA's faster and improved version of the WFLOW model for future operational hydrological forecasting systems within Delft-FEWS to provide improved warnings and support many countries and agencies both in Europe and globally;
- Providing entities for carbon sequestration and utilisation: assessment, validation, planning and optimization. Offer services to industry entities of any size for development in reservoir simulation (main exploitation mechanism for SINTEF). Take advantage of the open source price advantage to gain entry to market for small and medium enterprises, offer customization.

The partners working on WP5 (Greener aero-engine modules optimization), WP6 (Weather, climate, hydrological and farming pilot), WP7 (Energy and carbon sequestration pilot) will be involved in this plan to work on this activity while target sector pilots partners, industrial partners, research partners will be main stakeholders of this plan.

3.2.1.4 Exploitable results in Research/Scientific

This part aims at finding ways to re-utilize the research know-how acquired in future research activities and utilize project results for future scientific exploitation.

The activities in this plan will be publications, posters, participation in international conferences and research events/fora/panel discussions, exploiting all appropriate project results for advancing and enriching research and education agendas and relevant material. The activities also include establishing strong connection with the European HPC community including EuroHPC projects. These activities are similar to the dissemination activities and will be monitored in dissemination plan (section 2.2 of this document).

3.2.2 Market analysis for building business models and alternative solutions

3.2.2.1 Target market analysis tools and activities

This section reports on market trends, opportunities, and value proposition aspects within the scope of the ACROSS project. It aims to measure the key market figures along with the size of the market and the competition.

The activities to be performed for market analysis involve the exploration and consequently the use of tools including:

- SWOT analysis. A popular definition for the SWOT analysis indicates that "SWOT analysis allows an organization to analyse the causes of As-Is results and thus can inform the consideration of alternative solutions to suboptimal performance. To this end, the technique is relevant to two aspects of performance analysis - strategic planning and needs assessment - as well as to the evaluation of change initiatives." [2]. In this sense, the ACROSS partners will identify and analyse macro-economic effects, relevant to the HPC environment along with internal aspects that affect the project's execution, adoption and scalability;
- PESTLE analysis. The PESTLE analysis is used as a tool of situational analysis of business evaluation purposes and is one of the most used models in the evaluation of external business environment that is highly dynamic [3]. As the level of detail in the macro-economic factors affecting the external environment in the PESTLE analysis is greater, it forms the basis for identifying opportunities and threats that will be consequently used in the SWOT analysis;
- Product-market fit canvas or value proposition canvas. The product-market fit canvas is a tool that is used in lean/agile methodologies to find a customer (end-user) centric product validation and market orientation;

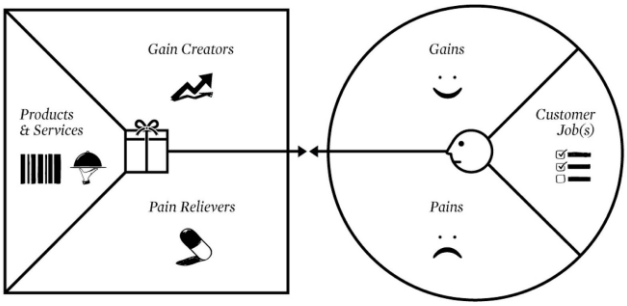

Figure 18 Product-market fit canvas

- Competition mapping involves the identification of key competitors (direct and indirect) and their features (target audience, positioning, key competitive advantage, sales channels, marketing strategy, etc.).

A set of dedicated exercises in the form of workshops will be conducted by the consortium partners in order to better map the key market aspects per domain (aeronautics, weather and climate, energy) and address the needs of the activity.

3.2.2.2 Preliminary business model

In this section a preliminary business model for the commercial exploitation of the ACROSS solution has been drafted. In the present document, the structure of the well-known business model canvas has been adopted, which was developed by Alexander Osterwalder [4]. The business model canvas provides a high-level overview of the main business components. Thereby, the following figure illustrates the overall vision of the Business model for the continuity of the ACROSS project:

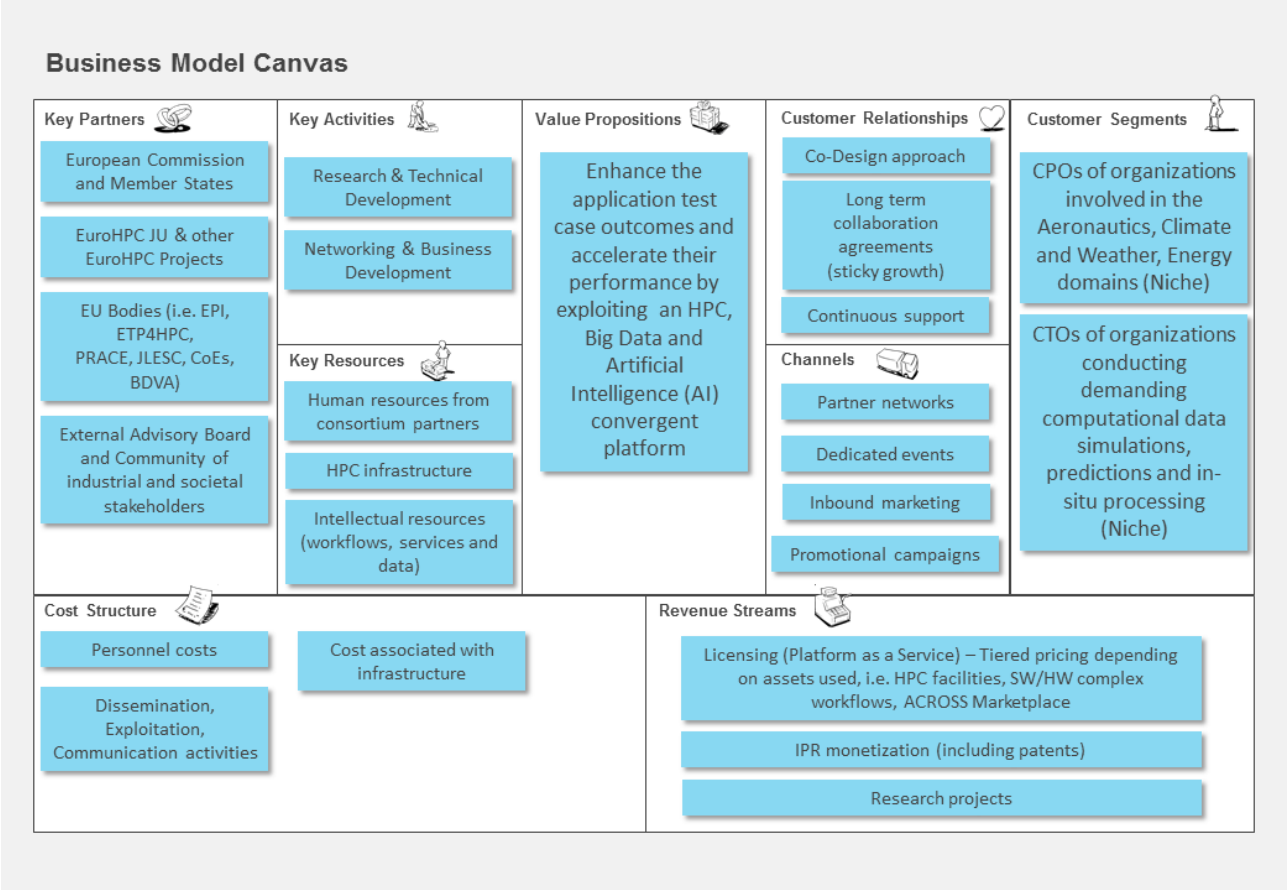

Figure 19 Preliminary business model canvas of the ACROSS project

Updated versions of the initial business plan are expected as part of the deliverables 8.5 (M18) and 8.9 (M36) along with more elaborated descriptions of its main building blocks (i.e., value propositions, revenue streams, channels, etc.).

3.2.3 Establishment of tactical alliances and external (not project participants) stakeholders

ACROSS must become widely known, understood and appreciated both within and without the EU HPC communities. It must 'reach out' to a wide (local, regional, European and global) audience in an attempt to form tactical alliances. The project envisions forming tactical alliances with external stakeholders that play an active role in different aspects of HPC and particularly in domain-specific services, thus, extending the scope of the project and fostering its industrial and societal value adoption. In this way, this course of action would be jointly monitored in the context of T8.4 "Societal and industrial value creation adoption".
Several stakeholder outreach strategies will be explored to form and sustain a live ACROSS community which will be regularly reached within the project's lifetime. All relevant stakeholders will be identified and invited through the consortium partners' networks in order to form the ACROSS ecosystem and serve its twofold ambition. More specifically, by forming a live community with external stakeholders the project is aiming towards:

1. The promotion of the ACROSS results in relevant organizations that hold the potential of maximizing the project's impact and its societal and industrial value adoption;
2. The involvement of external (not project participants) stakeholders which can benefit from project results (commercially and non-commercially).

The timeline of establishing tactical alliances with external stakeholders is summarized below:

- 1st version of ecosystem mapping ready (M9);

- Initiate reach with external stakeholders (M16);
- Updated version of ecosystem mapping ready (M18);
- Joint activities, events, discussions towards exploitation of project results (M36);
- Lessons-learnt (M36).

3.2.3.1 Ecosystem mapping initiation

Ecosystem mapping consists of all activities conducted by consortium partners aiming on the identification and reporting of relevant organisations, SMEs, industrial partners, academic institutions, etc. where a tactical alliance could be considered beneficial for the project. To this end, a table for mapping the external stakeholders to be reached has been drafted, consisting of input fields that would help in better grouping and promoting more tailor-made messages to them. The input fields are the following:

- Partner (the partner that recommends the external stakeholder);
- Stakeholder Name;
- Link (a link to the website of the stakeholder);
- Stakeholder Type (Choose among the following options: SME, Research Organisation/Academia, Large Company, EU funded project, EU Body & Initiative, EU Institution, Public Body / Administration, European Network, National Network, Regional Network, Community, Cluster, Association, Accelerator, Person, Other);
- Country;
- Status (Choose among the following options: To be contacted, Contacted, Committed, Collaborating, Other);
- Interested In (Choose among the following options: Aeronautics, Weather - Climate - Hydrological & Farming, Energy & Carbon Sequestration, Technical Framework, Other).

This table would be a living document within the project's lifetime, so as to identify, report and monitor the overall engagement process with external target audiences. A preliminary list consisting of 27 external stakeholder is already provided by consortium partners and will be finalized (1st version) as planned in M9.

Partner	Stakeholder Name	Link	Stakeholder Type	Country	Status	Interested in	Comments
NP	Centre For Research & Technology Hellas	https://www.certh.gr/	Research Organisation / Academia	Greece	To be contacted	Technical Framework	
SINTEF	Equinor	https://www.equinor.com	Large Company	Norway	To be contacted	Energy & Carbon Sequestration	
SINTEF	Ceetron Solutions	https://www.ceetronsolutions.com	SME	Norway	Contacted	Energy & Carbon Sequestration	Not much time for collaboration
NP	National Observatory of Athens		Research Organisation / Academia	Greece	To be contacted	Weather, Climate, Hydrological & Farming	
NP	GAIA EPICHEIREIN	https://www.c-gaia.gr/	Large Company	Greece	To be contacted	Weather, Climate,	

						Hydrological & Farming	
IT4I	LUMI users	https://www.lumi-supercomputer.eu	Community	European	Contacted	Technical Framework	
IT4I	e-INFRA CZ	https://www.e-infra.cz/en	Community	Czech Republic	Contacted	Technical Framework	
SINTEF	NORCE	https://www.norceresearch.no	Research Organisation / Academia	Norway	To be contacted	Energy & Carbon Sequestration	
SINTEF	TNO	https://www.tno.nl/en/	Research Organisation / Academia	Netherlands	To be contacted	Energy & Carbon Sequestration	
MPI-M	DKRZ	https://www.dkrz.de	Other (Specify in comments)	Germany	Collaborating	Weather, Climate, Hydrological & Farming	
MPI-M	CSCS	https://www.cscs.ch	Other (Specify in comments)	Switzerland	Collaborating	Weather, Climate, Hydrological & Farming	
LINKS	ITHACA	https://www.ithacaweb.org	Research Organisation / Academia	Italy	collaborating	Weather, Climate, Hydrological & Farming	Earth Observation
LINKS	CSI	https://www.csipiemonte.it/it	Regional Network	Italy	collaborating	Technical Framework	
MORFO	Ansaldo Energia	https://www.ansaldoenergia.com/	Large Company	Italy	Collaborating	Other (Specify in comments)	Turbomachinery and Energy production
MORFO	MAN	https://www.man-es.com/https://www.man-es.com/	Large Company	Switzerland	Contacted	Other (Specify in comments)	Turbomachinery and Heat Exchanger Optimization
AVIO Aero	GE Additive	https://www.ge.com/additive/	Large Company	Germany	To be contacted	Technical Framework	Additive Manufactur in process optimization via simulation
INRIA	JLESC	https://jlesc.github.io/	Research Organisation / Academia	Other	To be contacted	Technical Framework	Joint Lab in Extreame Scale Computing (JLESC)

INRIA	TERATEC	www.teratec.eu	Community	France	Committed	Technical Framework	Talk scheduled on Wed, June 23, noon-13:00.
BULL	EuroHPC	https://eurohpc-ju.europa.eu/index.html	EU Institution		To be contacted	Other (Specify in comments)	EuroHPC via our PO Daniel Opalka would be interested by being the project stakeholder
CINECA	CIMA research foundation	https://www.cimafoundation.org/	Research Organisation / Academia	Italy	To be contacted	Weather, Climate, Hydrological & Farming	
CINI	Baker Hughes	https://www.bakerhughes.com/	Large Company	Italy	Other (Specify in comments)	Other (Specify in comments)	Collaborating with UNIFI in Turbomachinery and Combustors system for the study and design of innovative solutions
CINI	University Of Melbourne	https://energy.unimelb.edu.au/	Research Organisation / Academia	Other	Collaborating	Other (Specify in comments)	Collaborating in the MSCA action TSCALE that will start in early 2022
CINI	KTH	https://www.kth.se/mech	Research Organisation / Academia	Sweden	Collaborating	Other (Specify in comments)	Collaborating in data analytics of Hi-Fi simulation of Turbine blades
DELTA	Rijkswaterstaat	https://www.rijkswaterstaat.nl/	Public Body / Administration	Netherlands	Collaborating	Weather, Climate, Hydrological & Farming	Cofunder of our project
DELTA	KNMI	https://www.knmi.nl/home	Public Body / Administration	Netherlands	To be contacted	Weather, Climate, Hydrological & Farming	See whether it become possible to operatinali

							ze weather forecast stream
DELTA	WUR-HWM	https://www.wur.nl/en/Research-Results/Chair-groups/Environmental-Sciences/Hydrology-and-Quantitative-Water-Management-Group.htm	Research Organisation / Academia	Netherlands	To be contacted	Weather, Climate, Hydrological & Farming	Interesting for collaboration for additional research by MSc/PhD students to result in scientific manuscripts

Table 7 1st draft of Ecosystem mapping table

3.2.3.2 Key value proposition

Since external stakeholders would act as multipliers and exploitation enablers, securing an efficient acceptance of the ACROSS tools and services, it is evident that a win-win engagement strategy should be adopted. In this context the external stakeholders, being invited in the ACROSS community would offered in return:

- Visibility in the ACROSS community, through news items and posts in the project's website, social media accounts and other channels;
- A chance to showcase success stories and share content on their media channels;
- Opportunities to reach collaboration agreements and become early adopters of the ACROSS solutions;
- Opportunities to take part in joint media sessions, events, demonstrations, webinars, etc., becoming part of the HPC community and lobbying at an EU level.

Those stakeholders which will agree to support the ACROSS project, will be reached at specific intervals so as to keep a close eye at the project developments, to offer feedback when needed and to participate at stakeholder events. As the ecosystem mapping task remains open until M18, this would allow follow up messages to be sent to external stakeholders that would be initially reluctant on initiating contact with the consortium.

3.2.3.3 Invitation messages

Invitation message templates are expected to be circulate to project partners so as to help them reach out external stakeholders. These templates will maintain project related content including:

- Project general information;
- Branding material;
- Contact information;
- Success stories in domains relevant to the external stakeholder domain of interest;
- Call to action.

The external stakeholders that will express their interest in becoming multipliers of the ACROSS vision will be asked to provide the following information to the consortium:

- Name of the organisation, brand identity, contact information;
- Permission to receive feedback from ACROSS;
- Express of Interest to participate and follow up the value adoption activities of ACROSS;
- Acceptance of the terms of the ACROSS Privacy Policy which will by ready by the consortium by M9.

3.2.3.4 Value adoption activities within the ACROSS community

Value adoption activities are an important part of the overall exploitation pathway. This is indeed reflected on the fact that industrial and societal value creation adoption are part of a dedicated task, namely T8.4 “Societal and industrial value creation adoption”. A set of knowledge transfer and demonstration activities has been defined promoting the ACROSS project within the community, raising awareness and building an engaged target audience, facilitating the project’s wider adoption. The following industrial and societal value adoption activities are expected to increase the reputation of the ACROSS project:

- Participation to target sector specific industry-oriented events;
- A dedicated workshop at the European Parliament;
- Communications with policy makers for further supporting networking;
- Organizing online events (webinars, training sessions and live demos, group discussions, etc.);
- Visits to target sector stakeholders.

BIM will rely on the innovation introduced by ACROSS useful for the value adoption amongst stakeholders to build tactical alliances and maximise the project impact:

A series of three Tech Forums targeted in disclosure the innovation introduced by the ACROSS project set up in strategic time-frames of the project timeline:

1. At the end of co-design (M15): ACROSS key technologies and platform are put in place, the Tech Forum will be focused on how these technologies are intended to meet the pilot’s requirements.
2. At the end of the first integration with pilot’s workflows (M18): following the first calculus attempts by pilots, this conference will explore the main issues encountered and lessons learned.
3. Final version of the Across platform (M30): The Across platform is validated, this Tech Forum will be focused on benchmark of the overall hardware and software ecosystem.

3.2.4 IPR management

The IPR defined in ACROSS CA is the baseline for IPR management. Moreover, a Business and Innovation manager, led by the partner AVIO, has been nominated to take over, among others, the coordination of all activities and negotiations surrounding IPR issues. The Business & innovation manager (BIM) will play an important role. As a horizontal role, the BIM will ensure that the innovation introduced by the Across project are correctly emphasized by following an exploitation strategy that is described in the following section. Moreover, BIM is also responsible for designing the business model and the exploitation activities that will lead to the successful market up take of the innovative ACROSS concepts in the EU industry. In addition, the BIM will make sure that the final solutions will meet the identified business needs. Finally, BIM will also help establish the network of the needed business partners.

Throughout the duration of the project, the Partners report any project-generated methodologies and technology components to the BIM and Project management. Partners should also report to the BIM manager and Project Management any Third-Party components used by the ACROSS Project. The topic of Third Party property rights is described in detail in the Consortium Agreement [RD.2](see in particular Attachment 3) and the GA [RD.1].

3.2.4.1 Patents management

ACROSS is unlikely to produce patents as its core deliverables are not patentable. However, new innovative products resulting from the project can potentially lead to patents which would certainly be very interesting for the industrial partners participating in this project. The potential patents will be tracked.

3.2.4.2 Knowledge Protection and Exploitation

In general, no approval is necessary for related actions as ownership is with individual partners or joint ownership of a group of partners who have agreed upon the conditions. It is important, however, that the Partners report their intentions of any such activity to the BIM manager and Project Management for project documentation and general coordination reasons.

3.2.5 Innovative exploitable results

ACROSS is structured to ensure effective exploitation. All results will be adequately transferred or released to enable their use beyond the lifetime and scope of the project.

All partners are involved in identifying exploitable results (ERs). The identified ERs will then be tracked and monitored in the Table of Exploitable Results. The source table is shared in the ACROSS sharing NextCloud and regularly updated to reflect actual progress. The WP8 team will regularly check the advance on the planned Exploitable Results with the relevant WPs and project partners. In particular, an update of the table will be included in the first Report on dissemination, exploitation and communication activities (D8.5 in M18) and in the Final report of dissemination, exploitation and communication activities (D8.9 in M36). In addition, the top 5 of the ERs will be selected and put in the reports (please refer to the paragraph 3.3 for the top 5 selection criteria).

The Table 8 is the template of the ERs tables. For each ER, the owner shall mainly specify a) the type of the ER, b) the ER name and its description, c) TRL (optional), and d) Proof of realization (needed for the end of the project).

ER#	Type of Exploitable Result (Product, ..)	Exploitable result name	Exploitable Result Description	TRL (*)	ER Manager	Relevant WPs	Relevant deliverables	Proof of realisation	ACROSS Type of Exploitable Result (HPC facilities, ACROSS SW/HW complex workflows, ACROSS Marketplace (industry vertical solutions), Research/Scientific results)
ER01									

Table 8 Template of ACROSS ERs Table

3.2.6 Exploitation models

Three main exploitation models or categories of the project results are defined in ACROSS:

1. The commercial exploitation model, which incorporates strategies, actions, tools and methodologies in order to: *i*) exploit the bulk of the commercial project outputs and *ii*) reinforce and advance the existing commercial prospects of industrial partners;
2. The research exploitation model, which implies the re-utilization of the research know-how acquired in future (research) and non-research activities;
3. The technological exploitation model, which implies the re-utilization of the technological know-how acquired for the development of innovative products and services.

As a consequence, the ACROSS Exploitable Results will be classified in these three categories: commercial, research and technological. Analysis on different categories of ERs will be made in the exploitation reports (D8.5, D8.9) in order to provide insight on the balancing of ER categories.

3.3 Evaluation: KPIs

The exploitable results are expected to be exploited by products, services, trainings, etc, anything out of ACROSS. It is therefore hardly to predict how many and when the planned ERs will be actually exploited and so to define the KPIs.

ACROSS project will however be willing to provide the evaluation of exploitable results' effectiveness by analysing and assessing the content in the Exploitable Results (ER) Table to elect the top 5 according to the criteria explained below.

The ER table is a live table, each partner shall propose at least one ER . Each technical WP (from WP2 to WP7) shall propose at least one ER. The ER table will be refined and reworked during the entire lifetime of the project.

Finally, a set of top 5 ERs will be elected in the first report in D8.5. The final ERs table and a final list of top 5 ERs will be elected in the last report in D8.9.

The industrial partners of ACROSS project would envision to exploit their ERs in their products or services for either enriching the existing ones or creating new ones. The ultimate expectation would integrate the ERs in industrial partners' respective portfolios.

The methodology to select and prioritize ERs is based on ERs' high potential to be exploited - meaning to make use and derive benefits downstream the value chain of a project, process or solution, or act as an important input to policy, further research or education. The following criteria to select the top 5 ERs will be applied: a) degree of innovation, b) exploitability and c) impact.

3.4 Exploitation Achieved results so far (from M1 to M6)

3.4.1 ACROSS planned exploitable results table

The following table is a screenshot of ACROSS Planned Exploitable Results collected at the time of publication of the current document. It is meant to be a starting point for the monitoring and tracking of exploitation achievements by the different consortium members. However, as it is compiled at a very early stage in this 3-year project, long time before any results have been achieved, it will very likely need to be updated at a later stage. According to the progress and outcome of the project's research activities, some planned ERs may become irrelevant, or new unexpected ERs may just come to light at some point.

ER#	Type of Exploitable Result (Product, ..)	Exploitable result name	Exploitable Result Description	TRL (*) If applicable	ER Manager	Relevant WPs	Relevant deliverables	Proof of realisation
ER1ER01	Product	FastML	FastML is a component of the Atos CODEX AI Suite product. Its goal is to facilitate the ML/DL operation (ML Ops), by managing AI Models (training...) and hiding infrastructure and deployment concerns to the user. It will be used, adapted and integrated to other components of the ACROSS software stack, to handle HPC/ML/DL workflows.	8	François Exertier (Atos)	WP4	D4.2	FastML enhancements resulting from its ACROSS usage will be available in the Atos product.
ER2	Product	Parallelized adopted for operation forecasting	Reach the point where the tested speed-up version of the wflow_sbm model will be passed on to the Dutch operational water autorities to be tested within operational setting and ultimately incorporated as part of the national hydrological forecasting suite for flood and drought forecasting and monitoring within the Netherlands	7	Pieter Hazenberg (Deltares)	WP6	D6.3	Updated model delivered to operational authorities where will be evaluated and considered for operations
ER3	Product	YSTIA YORC Orchestrator	YORC is a TOSCA based orchestrator available under open source licence. It manages deployment and execution of software application & workflow on any infrastructure. It will	7	François Exertier (Atos)	WP4	D4.2	YSTIA/YORC orchestrator is available as open source, it is used within Atos products like Atos CODEX AI Suite, by some external users, and within other

			be extended according to ACROSS requirements.					collaborative projects. New versions will benefit from the ACROSS related enhancements.
ER4	Open Source SW	OPM Flow for carbon sequestration	The OPM Flow software can be used by stakeholders in industry, academia and public sector to perform assessments and studies of large-scale carbon sequestration scenarios and strategies, and drive decisions on such.		Atgeirr Flø Rasmussen (SINTEF)	WP7	D7.7	Deliverable D7.7. New improved capabilities merged into OPM Flow main branch, accessible by stakeholders outside the ACROSS consortium.
ER5	Open Source SW	Damaris Analytics Plugin	Damaris in-situ/in-transit plug-in to enable analytics of streaming data being received from one or more simulations.		Gabriel Antonio (Inria)	WP7	D7.3	Public release of plug-in enabled Damaris software (https://gitlab.inria.fr/Damaris/damaris)
ER6	Tool	HyperLoom tool chain extension by Pilots requirements	HyperLoom is an acronym for a set of software for different users orchestration requirements. We will extend the selected one by the ACROSS requirements. All these software are currently under open source license.		Jan Martinovic (IT4I)	WP4	D4.4, D4.5	Pilots and external third party - integration the ACROSS extensions into the other SW solutions developed by IT4I for orchestration. The sustainability of this result is key for IT4I for its users.
ER7	Methodology	AI Acceleration	Hw/Sw extension of HPC architecture to accelerate AI-based applications		Huy-Nam Nguyen (Atos)	WP3	D3.1, D3.4,	Exploitation by project pilots and/or external applications.
ER8	Pilot Demonstrator	IFS global NWP model working at 5km	We will demonstrate the IFS global NWP model working at 5km resolution and adopted as input model for downstream applications (hydrological simulation and mesoscale downscaling)		Tiago Quintino (ECMWF)	WP6	D6.5	Exploitation by downstream application in WP6 workflows and/or external applications. Output data archived and available on MARS or CDS archive.
ER9	Open Source SW	Dynamic Resource Allocator	Dynamic Resource Allocator will be extended to integrate smart allocation policies targeting heterogeneous systems (both HPC and Cloud) and aiming to energy efficiently use them		Alberto Scionti (LINKS)	WP4	D4.3, D4.4	YSTIA Orchestrator Tool
ER10	Methodology	Design System	Foster extensive use of state-of-art HPC solutions to sustain and support AVIO Aero products excellence that means, specifically for Across project, aeronautical combustor and turbine design systems. Aim is to develop advanced modelling and, at the same time, reduce the required computational efforts and time.		Ennio Spano (Avio Aero)	WP5	D5.5 D5.6 D5.7	50% time reduction in computing time for turbine advanced design workflow and better accuracy for the combustor case to improve metal temperature prediction, product durability and life cycle cost
ER11	Open Source SW	Parallelized open-source software version	The multi-threated and parallyzed version of the wflow_sbm Julia software developed on a GitHub branch, once tested and evaluated becomes merged with the main branch to become publically available.	9	Pieter Hazenberg (Deltares)	WP6	D6.3	Updated and tested code added to main branch on GitHub page
ER12	Pilot Demonstrator	Mesoscale weather simulati	Downscaled weather simulations & forecasts will be conducted over Greek Peninsula in the context of smart farming applications		Savvas Rogotis (NP)	WP6	D6.4	Deliverable D6.4. Public demonstration in relevant environment (smart farming applications)

		ons & forecasts						
ER13	Methodology	Queue timing prediction	We will integrate our methodology for analysing and predicting queue waiting time of jobs into the middle-level orchestration layer of the ACROSS orchestration system		Alberto Scionti (LINKS)	WP4	D4.3, D4.4	Project pilots and external applications.
ER14	Methodology	Design System	Innovative Design approach CFD based leveraging on AI/HPC. The Pilot in the ACROSS project will provide an example of the potential innovation of such an approach. This methodology will be adopted as a very powerful approach for facing complex design phases, when multidisciplinary aspects are involved and multi-fidelity analysis are available. The methodology behind the new Design System developed in ACROSS will open important possibilities in several other fields of application in which CAE and AI tools can be combined and exploited leveraging on HPC resources.		Juri Bellucci (Morfo)	WP5.3	D5.1 D5.5	Multi-fidelity CFD Database creation of Optimal Geometries and Aero-engine Turbine aerodynamic design pilot Demo
ER15	Methodology	License Agreement	Internalisation and implementation of the U-THERM3D procedure in AVIO Aero practices for the design of aeronautical combustors. The optimised tool within the ACROSS project will allow a much faster design of combustors without loss of quality due to steady simulations or where certain effects are neglected for the calculation of thermal loads (standard practice in the early stages of design).		Antonio Andreini (CINI - UNIFI)	WP5.3	D5.1	Standardisation of the optimized U-THERM3d tool for implementation in AVIO Aero's internal combustor design procedure
ER16	Pilot Demonstrator	CDO-FDB-Connector	To allow the climate model ICON to directly write to the DB fdb the central MPI-M I/O library libcdl is extended to copy data via the climate data operators (CDO) application to an fdb DB instance	6	Luis Kornblueh (MPI-M)	WP6	D6.2	Optimized Obect Store, handling of all data sets of the pilot, support of complex WFs using semantic queries

Table 9 ACROSS Planned Exploitable Results in M6 (August 2021)

There are 16 planned ERs at the time being, all partners have envisioned and reported at least one planned exploitable result. These ERs will be updated, refined or even replaced over time the partners make progress in the advancement of work planned in ACROSS. Analysis on the ER types will be made in the exploitation reports (D8.5, D8.9) in order to provide insight on the balancing of ER types.

4 Conclusion

This deliverable outlines the plan of the project dissemination, communication and exploitation in order to boost the impact of the project activities and results.

This document also details the quantitative and qualitative measures to be used to evaluate the effectiveness of the planned activities, so as to enable the project consortium to take corrective actions if needed.

In summary, this deliverable defines:

- ACROSS Dissemination & Communication strategies as well as the Public Outreach Strategy, the associated activities and the way to evaluate the effectiveness of the activities;
- ACROSS Exploitation Strategies and activities including individual exploitation plans, market analysis, IPR management as well as the planned exploitable results.

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