



Deliverable 6.4

Report on dissemination activities - first version

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1. Introduction

The iSteel-Expert Consortium is keen to communicate and disseminate project results across the European steel sector and beyond as a way to maximize the impact of the project by raising the interest of the European steel industry.

This deliverable is the first of a set of 3 deliverables that will be provided at M12, M24 and M36, respectively. Each of these 3 deliverables will describe the dissemination and communication activities implemented by the iSteel-Expert Consortium during a period of 12 months, apart from the last one which will also provide a final overview. All these 3 deliverables will also assess the status of achievement of the different dissemination and communication targets established in the Communication and Dissemination Plan (Deliverable D6.2) and will identify possible revisions of the identified Dissemination and Communication strategy, wherever applicable.

The present document summarizes the dissemination and communication activities carried out by the iSteel-Expert partners in the first year of the project. It includes the activities carried out in its social media channels (such as LinkedIn or Twitter) as well as the events targeted by the consortium for dissemination purposes.

Being the project in its first year of activity, most outcomes were not mature enough for dissemination. Nonetheless, the Consortium was active in raising awareness, curiosity, and interest towards the project in the European steel sector by means of the social network and the project website. Moreover, some activities related to modelling and simulation benefitted from the background of some of the partners. Therefore, several presentations were provided by some of the partners in relevant international events.

All the developed activities followed the Communication and Dissemination Plan (Deliverable D6.2), which proved to be well aligned with the aims and scope of the project. The overall strategy established in that document proved to be effective and presently does not need any revision.

This rest of document is divided into 4 main sections:

- Section 2 focuses on the activities that were carried out to raise awareness and interest toward the project in the European steel sector and to disseminate some preliminary outcomes.
- Section 3 describes the developed communication activities.
- Section 4 overviews the future events that are targeted by the Consortium to disseminate and communicate the project outcomes.
- Section 5 provides some concluding remarks and considerations for a fine tuning of the established Dissemination and Communication strategy to amplify the project impact and meet the ambitious targets that were identified at the beginning of the project in the Communication and Dissemination Plan (Deliverable D6.2).

2. Dissemination activities

Dissemination is focused on the **public disclosure of the project results to specific target groups**, and has the following main Dissemination Objectives (DOs):

- DO1. to raise awareness and interest of potential users on the project results;
- DO2. to foster interaction with stakeholders and potential users (the ecosystem) to obtain key feedback and enhance exploitation opportunities;
- DO3. to transfer knowledge of the developed solutions to the scientific community and exchange experiences which can support improvements and refining of the research activities;
- DO4. to foster the acceptance of iSteel-Expert outcomes and tools in the EU steel industry;
- DO5. to ensure a broad applicability of the project results also beyond the steel sector.

During the first year of the project, although only a few preliminary results were available for dissemination, the Consortium showed a positive attitude toward dissemination and tried to exploit the most suitable chances to promote the project within the scientific, technical, and industrial stakeholders. In particular, a poster was presented by the project Coordinator Ing. Renato Girelli at the EAF International Meeting, which was held in Bergamo on 30.11-01-12.2023.

The abstract of the poster presentation and the poster itself, are reported in Subsection 2.1, while the D&C report related to the EAF International Meeting, prepared according to the template available in the Dissemination and Communication Plan, is contained in **Appendix I**.

Moreover, a paper was submitted and accepted for presentation at the XXI International Multidisciplinary Modelling and Simulation Multiconference I3M 2024, which will be held at Tenerife (Spain), on September 18-20, 2024. The final version of the paper is under preparation; thus details will be provided in the second Report on Dissemination activities (Deliverable D6.5), which will focus on the Dissemination and Communication activities implemented in the second year of the project.

2.1 iSteel-Expert: a solution to improve situation awareness in the EAF area which enforces process efficiency, reliability and sustainability while favouring preservation and transfer of steelworks know-how

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Important challenges in the transformation of the European steel industry come from social phenomena that are potentially destructive for the business continuity:

- The haemorrhage of highly skilled people in the current so-called 'war of talents' is a serious business threat. Therefore, companies must compete for highly skilled people with attractive workplaces and working conditions.
- The steel industry workforce is undergoing an unprecedented change. The age structure in most European steel-producing companies is such that more than 30% of the workforce will leave the industry in the period 2015-2030, with a grave loss of expertise, hard to re-form, in the times needed by the business continuity, with traditional means and strategy.

Decision support systems jointly exploiting multiple sensing devices, that provide very heterogeneous data and approaches for continuous operators' know-how inclusion and preservation, are uncommon in steelworks and so far, not exploited in the EAF monitoring and management.

In such a context, the EU-funded research project entitled "*Remote expert virtual system enhancing human management capabilities and favours preservation, transfer and continuous evolution of knowledge for steelmaking operations*" (iSteel-Expert, G.A. No. 101112102) has been launched in July 2023.

iSteel-Expert aims at modernizing the EAF area by implementing a novel integrated approach based on virtual system able to monitor events and suggest improvements based on a Machine Learning-based pre-analysis of gathered data. The iSteel-Expert system based on IoT, I will act as a human expert supporting standard and maintenance operations and will enhance human management capabilities, by detecting relevant events and their consequences. Finally, it will implement a knowledge-based approach that working integrated in an interactive immersive training tool, will favour preservation, transfer and continuous evolution of steelwork's wealth of knowledge."

The structure of the project and the approach to use enabling digital technologies, for to improving workforce management, health, and safety in the EAF area, as well as energy efficiency increase and GHG emission reduction, will be presented.

The poster shown during the event is reported in **Figure 1**.

iSteel-Expert: a solution to improve situation awareness in the EAF area which enforces process efficiency, reliability and sustainability while favoring preservation and transfer of steelworks know-how.

tenova



PITTINI

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Threats & Needs



- The **hemorrhage of highly skilled people** in a sort of 'war of talents' is a serious business threat, which can be faced by creating attractive workplaces and stimulating working conditions;
- The steel industry workforce is undergoing an **unprecedented change**: more than 30% of the workforce is leaving the sector in the period 2015-2030, with a relevant loss of expertise, hard to timely re-form using traditional means and strategies.
- **Situation awareness** is a key to ensure process reliability, health and safety at the workplace and low environmental impact.

Opportunities

- **Novel sensing devices** are now available also suitable to the harsh environmental conditions commonly found in the EAF area
- **Artificial Intelligence and Machine Learning** enable processing and interpretation of large volumes of heterogeneous data.
- **Simulation-based training** improves preparation of new generations of highly qualified personnel, taking advantage of familiarity of new resources with latest technologies and techniques.

Challenge



iSteel-Expert implements and demonstrates in industrial environment a **remote expert virtual system** that monitors 24/7 the progress of the process, analyses the information and suggests actions to improve and/or correct steelmaking operations.

iSteel-Expert acts as a human expert in **collecting and analyzing information** from the furnace, **substantially increases its quality** to support operators in maintenance and decision-making. Based on IoT, it enhances human management capabilities, **timely detects relevant events and identifies their consequences**. A knowledge-based approach is integrated in an **interactive immersive training tool**, which favors preservation, transfer and continuous evolution of the company's wealth of knowledge

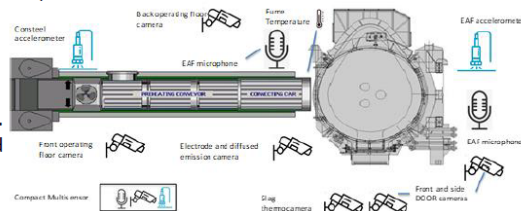
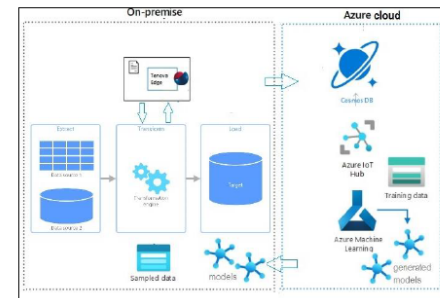


Our approach



iSteelExpert is the first demonstration project combining up-to-date key technologies, already demonstrated at industrially relevant environment, and tools, already built upon the Industry 4.0, to **extend the sensing capabilities of human operators** and **preserve company's know-how**. Our methodology is based on five fundamental pillars:

- **Ad-hoc installation** of commercial **sensors** suitable to the harsh steelmaking environment.
- **Dedicated data collector electronic board** to simultaneously collect plant data in different formats and types
- **local preprocessing station** for video, acoustic, vibrational and temperature data, to extract relevant features and to transfer only necessary data to a cloud infrastructure.
- **Cloud infrastructure** running sophisticated **algorithms** (including **Machine Learning**) to provide useful Key Performance Indicators and smart information via user friendly and effective dashboards on a dedicated WEB portal.
- **Interactive immersive simulation training tool** using raw and processed data and exploiting innovative approaches.



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Figure 1. Poster presented at the EAF International Meeting, Bergamo (Italy), 30.11-01.12.2023.
















2.2 Achievement status of the established dissemination targets

Dissemination actions mostly rely on the availability of at least partial outcomes of the project. Therefore, the dissemination actions which were carried out in the first year were quite limited, and a much more intense dissemination is expected in the second Year of the project. Nonetheless, some progresses can be registered in the achievement of two target values for the Key Performance Indicators (KPIs) of dissemination actions established within the Dissemination and Communication plan (Deliverable D6.2), such as summarised in **Table 1**.

Moreover, it is worth noting that most members of the Consortium, especially Tenova, Pittini (the industrial group which Siderpotenza is part of) and SSSA are very active in the EU-funded research and are committed to favour synergies with other EU-funded projects, as soon as the research progress will be sufficient to start results sharing.

To sum up, at the present status of the project, the dissemination strategy appears appropriate and does not need revision.

Table 1. Comparison between target and actual values of the established KPIs for the dissemination activities.

Dissemination activity	KPI Dissemination	Target	Current value	% vs target	Status
Scientific and technical papers	No of articles in well reputed scientific Journals in Open Access mode.	6	0	0%	
	No of downloads for the published papers overall	3000	0	0%	
Presentations, lectures, posters in conferences, congresses and workshops	No of papers published in proceedings of international conferences and workshops	10	0	0%	
	No of presentations/posters discussed in international scientific events	40	1	2.5%	
	No of persons in the general audience reached in the attended scientific events	5000	200	4%	
Internal seminars and dissemination events	No of internal partners' events;	5	0	0%	
	No of pilot training sessions related to the outcomes of the project and some of the developed tools	3	0	0%	
Webinars and seminars on iSteel-Expert outcomes	No of webinars and seminars	3	0	0%	
	No of persons overall attending the held webinars and seminars	150	0	0%	
Presentations in events promoted by EU initiatives, platforms, and associations	No of presentations	2	0	0%	
	No of experts and industrial representatives reached in the presentation events	100	0	0%	
Collaboration and synergies with other CSP and HEU projects	No of projects contacted for potential synergies in terms of knowledge exchange and future project scale-up	5	0	0%	
	No of joint activities put in place with some of the previously identified and contacted projects	2	0	0%	
iSteel-Expert final Workshop	No of presentations held during the Workshop both by iSteel-Expert beneficiaries and by external experts	5	0	0%	
	No of attendees	100	0	0%	

3. Communication activities

Communication activities mostly aim at **promoting the project itself and its impacts among the identified groups**. The following main Communication Objectives (CO) were defined:

- CO1. to raise awareness in the steel community of the benefits of the iSteel-Expert technologies and solutions in terms of socio-economic and environmental sustainability of the steel production cycle;
- CO2. to raise awareness and favour opportunities for transferability of concepts;
- CO3. to raise awareness among European Commission (EC), Public Authorities and policymakers to foster cooperation in spreading the benefits of the iSteel-Expert outcomes and solutions;
- CO4. to involve workers and young talents in further development and deployment of the iSteel-Expert tools and solutions and create among them awareness on their impact by also promoting connected career opportunities;
- CO5. to promote gender equality and integrate gender dimension in research and innovation activities.

Based on the strategy elaborated at the very beginning of the project, the communication activities implemented by the iSteel-Expert Consortium were mostly aimed at raising awareness of the project objectives and potential benefits in the steel community.

The Consortium made the choice to implement communication actions that mostly refer to technical objectives, activities, and outcomes of the project. Consequently, communication activities were limited in number due to lack of mature results to showcase.

The communication strategy mostly exploited the project website, the social media (LinkedIn) and some presentations made by single partners on more general topics connected to iSteel-Expert. One newsletter was issued, mostly devoted to providing basic information on project objectives and Consortium) and one press release in Italian daily newspaper.

3.1 Project website

The iSteel-Expert website (<https://www.isteel-expert.eu/>) is online since December 2023 and was finalised by the end of the first semester of the project (see Deliverable D6.3), according to the project schedule.

By the end of 2023, the iSteel-Expert website registered 226 total visits from 143 different users, such as depicted in **Figure 2**, which shows the time trend of the visits of the website since the first day it was online until June 2024. Figure 3 shows the geographical distribution of the visitors of the project website.

Considering that very few technical results and documents are so far available on the project website, the results can be considered satisfactory.

A more intensive promotion of the project website is planned for the second year of the project, for instance, by introducing the link to the website (also in the form of a QR code) in the last slide of all presentations/posters related to the project.

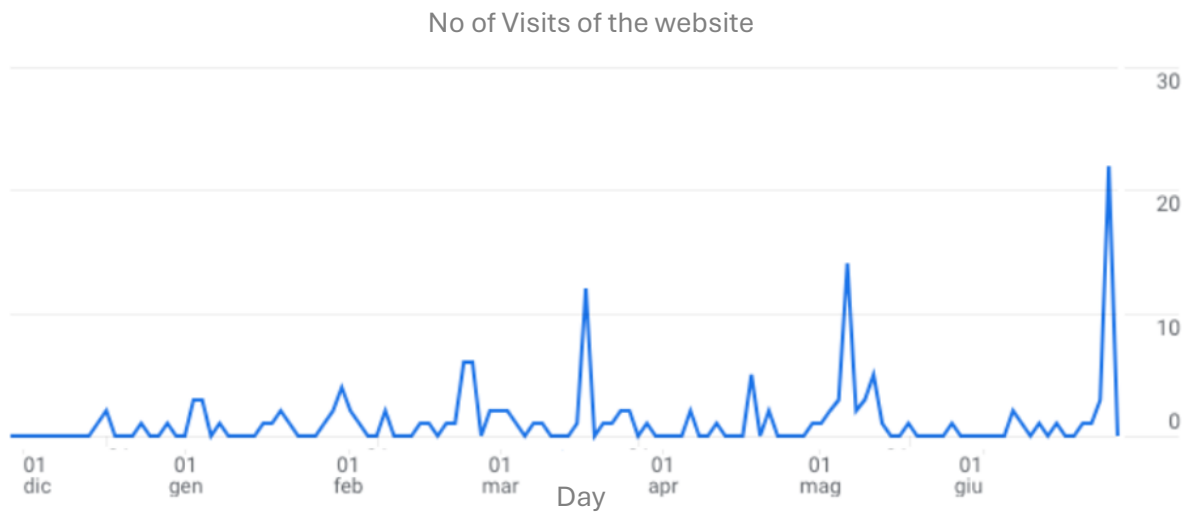


Figure 2. Time trend of the number of visitors of the project website starting from 01.04.2023.



Figure 3. Geographical distribution of the visitors of the project website.

3.2 LinkedIn Account

A LinkedIn account was created for the project at the end of July 2023 (see also Deliverable D6.2) and presently holds 736 followers. 8 posts were published, which gathered a total of 10774 impressions and 54 reposts. The time trend of the visitors who accessed the iSteel-Expert page on LinkedIn (based on the LinkedIn analytics) is shown in **Figure 4**, while the distribution of their profiles is shown in **Figure 5**.

Figure 3 clearly highlights the need to revitalise the LinkedIn account via new posts, that will be published at a higher frequency as soon as some preliminary results become available. This is indeed a task for the incoming months, following the development of the technical activities in the different work packages of the project.



Figure 4. Time trend of the visitors of the LinkedIn page of the project.

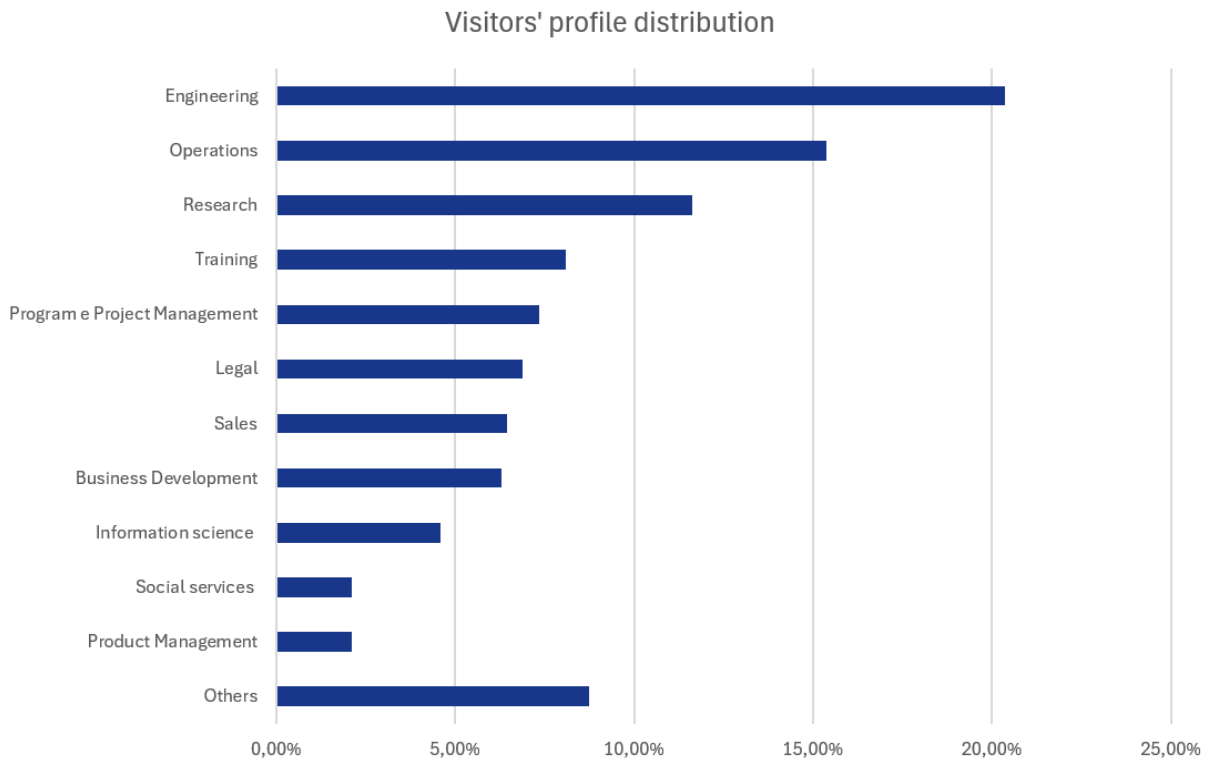


Figure 5. Distribution of the profiles of the visitors of the LinkedIn page of the project.

3.3 Newsletters and press releases

Two newsletters were released in the first year of the project: the first one presents the overall concept of the project, its main objectives, and the Consortium, while the second one summarises the work developed in the first year of the project. The newsletters were spread through the project website and the project LinkedIn page. The publication of the newsletter was not as regular as it should be, but the Consortium is committed to release more numerous newsletters in the incoming months and on a more regular basis.

Moreover, a press release in Italian was issued 02.08.2023 on the Open Innovation Platform of Regione Lombardia (see **Figure 6**), the region where the headquarters of the project Coordinator (Tenova) is located. The English translation of the text of this press release is available in **Appendix II**.

The number of press release will be increased in the incoming years as soon as results which can be impactful on the general audience will become available.




















Figure 6. Press release on Regione Lombardia's Open Innovation Platform.

3.4 Achievement status of the established communication targets

Table 2 present the current value of the established KPIs for communication activities and compares them with the target values established in the Dissemination and Communication Plan (Deliverable D6.2). Such values are very ambitious, and their trend cannot be "linear" throughout the project duration, as communication initiatives are expected to be more numerous and effective as soon as concrete results will be available. However, especially the activity on social media (LinkedIn) proved to be effective, with the target number of followers expected for the whole project duration largely overcome in the first year.

Table 2. Comparison between target and actual values of the established KPIs for the communication activities.

Communication activity	KPI Communication	Target	Actual value	% vs target.	Status
Project website with dedicated contents. Link to partners' website. Sharing public deliverables, reports, and training material	No of views by M34	10,000			
	No of documents downloads	1,000			
	No of persons in the total audience reached	40,000			
Newsletters and bulletins	No press of releases with news, events, and information of interest	11	1	9%	
	No of newsletters with news, events, and information of interest	2	2	100%	
	No of readers	5,000	827*	16%	
Production of communication material	No of leaflets/brochures produced in the project.	2	0	0%	
	No of videos generated during the project.	2	0	0%	
Press releases to newspapers and social media.	No of social media followers	3,000	736	25%	
	No of persons in the reached audience	5,000			
Presentations in events organized by or relevant to EU, platforms, and associations. Publications on EC's communication channels	No of clustering events at EU level	1	0	0%	
	No of publications on EC communication mean	1	0	0%	
Attendance to exhibitions/trade fairs	No of exhibitions or trade fairs attended	6	0	0%	
	Overall No of persons in the audience of the attended exhibitions and trade fairs	2,500	0	0%	
Communications and seminars dedicated to students and young minds	Overall no of students reached	300	0	0%	
Communications and seminars dedicated to gender equality	No of presentations on gender equality in project event	1	0	0%	
	No of sessions on career opportunities	1	0	0%	

* This value is estimated assuming that 20% of the impressions of the LinkedIn posts containing the newsletters and the press release correspond to readers of the document.

In the future, newsletters should be published on a more regular basis and, with respect to the initial communication strategy, it was decided that they should not necessarily overview all the activities

carried out on a certain period. In other words, also “thematic” newsletters could be published additionally to the more “comprehensive” ones, which focus on one specific WP or research topic.

Only one press release was delivered in 2023, as also in this case it is not easy to reach attention of press and media when very few results are available, but the size of the potential audience reached by that press release was large enough to compensate for the missing one, although such audience is based only in Italy. The Consortium is committed to enforce its strategy on this side and all the partners are planning to mobilise local press in the future.

The presentations in events organized by or relevant to EU, platforms, and associations. Publications in EC’s communication channels and the communications and seminars dedicated to students and young minds as well as to gender equality are clearly foreseen mostly for the last two years of the project.

4. Future targeted events

During regular meetings (Steering Committee meetings and 6-monthly General Assemblies) and, more in general, during the project execution, the iSteel-Expert consortium periodically analyses the events being planned and update the list of potential targets for iSteel-Expert. The target events include conferences, workshops, exhibitions and other dissemination and communication opportunities, where the Consortium can make presentations to share the results of the work carried out in iSteel-Expert, as well as trade fairs, exhibitions and dissemination and communication initiatives organised by the EU.

In the Dissemination and Communication Plan established at the beginning of the project (Deliverable D6.2) an initial list of events was provided. In such list 1 out of the 2 events initially identified for the first year of the project were attended, the missing one being the ESTEP Workshop on Digital4Environment, which was not exploited as dissemination opportunity for the project mainly because, once the topics of the event were officially published, it turned out that the project was not relevant to them.

This list of potentially relevant events has been revised at the end of the first year to reflect future opportunities for disseminating and communicating the project outcomes, and **Table 5** provides the list of future events identified by the Consortium at the date of delivery of the present document.

Table 3. list of relevant events (question marks are included when the exact dates or locations are still not defined).

Event	Date	Location	Description
The Iron & Steel Technology Conference and Exposition	05-08.05.2025	Nashville (USA)	Main outcomes related to WPs 2-4
ESTEP Workshop AI4Steel	??.??.2025	??? (IT)	Main outcomes related to WP3
18 th International Work-Conference on Artificial Neural Networks (IWANN2025)	??.06.2025	??	Main outcomes related to WPs 2-3
26 th International Conference on Engineering Applications of Neural Networks (EANN 2025)/ 21 st International Conference on Artificial Intelligence Applications and Innovations (AIAIA 2025)	??.06.2025	???	Main outcomes related to WP3
XXII International Multidisciplinary Modelling and Simulation Multiconference I3M 2025	??.09.2025	???	Main outcomes related to WP4
METEC & ESTAD 2025	06-09.10.2025	Verona (IT)	Main outcomes related to WPs 2-4
33 th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN 2025)	??.10.2025	Bruges (BE)	Main outcomes related to WPs 2-3
14 th European Electric Arc Furnace Conference EEC 2026	??.06.2026	???	Final Project results
41 th Congress of the Italian Association of Metallurgy	??.09.2026	??? (IT)	Final project results
XXIII International Multidisciplinary Modelling and Simulation Multiconference I3M 2026	??.09.2026	???	Final project results mainly related to WP4
34 th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN 2025)	??.10.2026	Bruges (BE)	Final project results

5. Conclusions

In the first year of the project, also considering the limited availability of concrete results, the iSteel-Expert consortium developed a sufficient Dissemination and Communication activity. The elaborated Dissemination and Communication plan proved to be effective and, in general, the partners showed a positive and collaborative attitude in spreading research objectives, ambitions, concepts and preliminary outcomes. This enabled a good progress on the achievement of the established target values of some of the identified KPIs for Dissemination and Communication.

Moreover, the Consortium is seeking connections and identifying opportunities for synergies with other EU-funded research initiatives.

The Consortium also identified some margins for improvements to be stressed for communication activities, also based on the expected development of activities and availability of partial results, especially as regard to:

- development of press releases with national and international visibility;
- more numerous and more “regular” publication of newsletters, also focused on specific topics;
- intensification of the frequency of the LinkedIn posts.

6. Appendix I

Event information	
Event name (and acronym)	EAF International Meeting
Type of event	Workshop
Date	November 30- December 1, 2023
Location	Bergamo (Italy)
Geographic coverage	European
Type of audience	RTOs, Academia, Steel Companies, Associations, Companies from other industrial sectors, European Commission
Approximate size of audience	203
Short description	A dissemination event organised by the Italian Association of Metallurgy (AIM) to discuss research trends and industrial advancement related to all aspects of EAF technology. The meeting aimed at allowing a comparison between the current and future needs and at contributing to set the ground to satisfy these demands now or in the future, by encouraging scientific and technological exchanges between technology providers, suppliers, manufacturers, academia, and research organisations.
Information about dissemination activity	
Presentation title	iSteel-Expert: a solution to improve situation awareness in the EAF area which enforces process efficiency, reliability and sustainability while favouring preservation and transfer of steelworks know-how
Presenter	Renato Girelli (Tenova)
Other partners involved	SSSA
Hashtag(s) for Social Media	#research #eu #machinelearning #sustainability #steel #steelindustry #Artificialintelligence #AI #metallurgy #EAF
Attachments (e.g. agenda, invitation)	Detailed program of the event

PROGRAMME

**PRODUCTIVITY
ENERGY EFFICIENCY
RAW MATERIALS &
DECARBONIZATION**

**BERGAMO
30 NOVEMBER
AND
1 DECEMBER
2023**

ORGANISED BY
 **ASSOCIAZIONE
ITALIANA DI
METALLURGIA**



Throughout the years, the EAF meetings have become a key-event for the industrial and academic experts involved in the EAF steelmaking. Not only they allow the improvement of technology, but most important they guarantee the "know-how inheritance": transfer, sharing and recording of the knowledge within the company at any level. Besides the improvement in process efficiency, continuous measurements and automatic control contribute decisively to all aspects related to safety and environment. On the other hand, the transition to circular economic and the action against the climate change implies new challenges: improvement of scrap quality, use of DRI/HBI, substitution of coal injection, improvement of slag quality, control of slag composition, possible exploitation of hydrogen-burners etc. The Meeting aims at gathering and sharing information on all aspects of EAF technology, among delegates with academic and industrial backgrounds. Such an event, capable of bringing together suppliers and manufacturers, will allow the comparison between the current and future needs and will set the ground to satisfy these demands now or in the future.

CONFERENCE CHAIRPERSON
Carlo Mapelli - Politecnico di Milano

ORGANISING COMMITTEE
Mauro Bianchi Ferri - Acciarium
Serena Fasolini - DEREf
Gianpaolo Foglio - Feralpi Group
Mario Marozzi - Tenova
Jose Noldin - GravitHy
Luca Orefici - Pipex Energy
Weihong Yang - KTH



30th November 2023

- 8:00 Welcome coffee & registration
- 8:50 Welcome addresses
- 9:00 **(eaf_038) Opportunities for supporting research and development initiatives**
A. Colli - Commissione Europea, Italy
- 9:15 **(eaf_030) Energy-efficient and hydrogen-ready technologies for EAF steelmaking**
J. von Scheele, H. Groiss - Linde GmbH, Germany
H. Alshawarghi - Linde Inc., USA
P. Kwaschny - Linde AB, Sweden
J. van Lingen - Linde Gas Netherlands, Netherlands
D. Razzari - Linde Gas Italia, Italy
- 9:25 **(eaf_003) Insight into the behavior of a Hydrogen Arc in an EAF furnace**
A. Kharicha, M. Al-Nasser - Montanuniversitat Leoben, Austria
- 9:55 **(eaf_002) Hy3 (Hy-cube) project : Hyundai Steel's carbon neutral strategy**
H. Kim, M. Sun, Y. H. Kim - Hyundai Steel, Korea
- 10:15 **(eaf_012) Failure analysis of a HDPE liner in a type IV hydrogen storage tank**
A. Rondinella, G. Capurso, F. Andreatta, L. Fedrizzi - Università di Udine, Italy
D. Menotti, A. Agnoletti - Faber Industrie, Italy
- 10:35 LONGARETTI AWARD
- 10:55 coffee break



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- 11:10 **(eaf_001) Future Green Steelmaking for high-quality steel grades via the DRP-EAF route: Case study for high and low grade DRI input**
S. Chatterjee, S. Kumar Panda - Tata Steel Netherlands, The Netherlands
- 11:30 **(eaf_013) The value of DRI - impact on steel quality**
B. Vucinic - Danieli & C., Italy
- 11:50 **(eaf_014) Role of physicochemical properties of biochar on the mechanical and metallurgical performance of self-reducing briquettes made of biochar and mill scale**
G. Dall'Osto, D. Mombelli, L. D'Aurea, C. Mapelli - Politecnico di Milano, Italy
- 12:10 **(eaf_019) Optimizing Fe yield and DRI integration: leveraging fast and simple OES technology for short tap-to-tap EAF operations and slag control**
A. Schlemminger - QuantoLux Innovation, Germany
M. Ounanian, A. Kunz - QuantoLux GmbH, Germany
- 12:30 **(eaf_036) I-Smelt: new smelting technology based on electricity and biochar**
C. Mapelli, G. Dall'Osto, D. Mombelli - Politecnico di Milano, Italy
R. Carli - Prosimet, Italy
- 12:50 **(eaf_033) Combination of EAF process modelling and process control for improvements of steel production through innovative approaches**
P. Frittella, L. Angelini, A. Landini, G. Foglio, F. Fredi, C. Di Cecca, M. Tellaroli, B. Cinquegrana, F. Morandini - Feralpi Siderurgica, Italy
- 13:10 lunch





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14:00 (eaf_011) Numerical modeling of mass and energy balances in EAF
S. Ferro, C. Cicutti, F. Marchini - Tenaris, Argentina
P. Galbiati - Tenaris, Italy
A. Bilancieri - Tenaris University, Italy

14:20 (eaf_022) Optimization of the energy consumption through waste heat recovery and advanced digital integrator
R. Bontempi, U. De Miranda, M. Zanforlin - ORI Martin, Italy
E. Pingaro, M. Baresi - Turboden, Italy
F.J. Chiarullo, G. Di Zanni R. Girelli - Tenova, Italy


14:40 (eaf_027) Efficient heat buffering for ORC systems on EAF
A. Dallasta, F. Ratto - Area GenoVeSE, Italy

15:00 (eaf_004) The effect of arc stability on EAF performance
N. Lugo, S. Goulden, P. Stafford, R. Corbari - GrafTech International Ltd., Switzerland

15:20 (eaf_039) DevH2forEAF project - Developing and enabling H2 utilization to produce liquid steel in EAF
F. Ferrari - Nippon Gases Industrial, Italy

15:40 (eaf_040) Waste heat from EAF offgas utilization
A. De Vito, G. Faslivi, I. Luzzo, A. Provesi, M. Chini, L. Bianco, D. Gaspario - RINA Consulting-CSM, Italy

16:00 coffee break

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16:30 (eaf_025) Tenova's approach for the efficient and reliable transition of the steel industry
A. Grasselli, P. Stagnoli, S. M. Reali - Tenova, Italy


16:50 (eaf_020) Transparency - The key pillar on the path towards sustainable industrial production and fundamental for CO2 engineered EAF refractory concepts
K.M. Zettl - RHI Magnesita, Austria

17:10 (eaf_032) Q-ONE technology, developed and patented by DANIELI, represents a breakthrough innovation in power transfer to the arc furnace
L. Morsut - Danieli & C, Italy

17:30 (eaf_007) Revolutionary EAF solution: a review of the operation of eleven EAF Quantums by Primetals
D. Catan, A. Masolini, A. Hegazy, M. Hein, J. Schwörer, C. Nayman, H. Fuchs, H-J. Krassnig - Primetals Technologies Germany GmbH, Germany

17:50 End of the session

19:00 Conference dinner at Roof Garden restaurant – Hotel San Marco




1st December 2023

8:30 (eaf_009) Application of different tools to improve process control in the Electric Arc Furnace
J. Gaspari, L. Waridel, S. Goya - Tenaris Siderca
S. Ferro, C. Cicutti - Tenaris, Argentina

8:50 (eaf_006) The maintenance free coupling
L. Gottellini, E. Borlandelli - Rima, Italy

9:10 (eaf_008) Robotics applied to EAF steel bath deslagging
L. Rusu - Polytec, Italy

9:30 (eaf_031) Stirring efficiency generated by electromagnetic stirring vs bottom gas stirring for a giant electric arc furnace -water modelling and numerical simulation results
L. Teng, H. Yang - ABB Metallurgy, Sweden
M. Zielinska - ABB Corporate Technology Center, Poland

9:50 (eaf_024) Efficient and highly productive EAF: operational results of a Tenova's reference plant
C. Leoni, A. Grasselli, P. Stagnoli - Tenova, Italy
B.B. Cheng, J. Chen - Tenova Technologies, China

10:10 coffee break

10:40 (eaf_023) EIT Raw Materials RIS-DUSTREC: investigation and selection of furnace dust samples for valuable metals recovery
D. Mombelli, C. Mapelli, G. Dall'Osto - Politecnico di Milano, Italy
G. Tavčar, R. Kocjančič - Jožef Stefan Institute, Slovenia
D. Radulović - Institute for technology of nuclear and other mineral raw materials (ITNMS), Serbia
I. Ristović - University of Belgrade, Serbia
M. Ciszewski - Łukasiewicz Research Network, Poland
J. Kastvnik - TH ReMining, Slovenia
A. Mladenović, A. Mauko - Slovenian National Building and Civil Engineering Institute (ZAG), Slovenia




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11:00 (eaf_015) Utilization of secondary lead slag as a secondary raw material
G. Tavčar, R. Kocjančič, A. Stergaršek, M. Ponikvar-Svet - Jožef Stefan Institute, Slovenia
U. Herlec, M. Dolenc - University of Ljubljana, Slovenia

11:20 (eaf_016) The Synthetic Graphite Industry: The Achilles heel of Green Steel and Green Mobility through the lens of announced shortages and geopolitical disruptions
R. Van Rensburg - Africa AST Technology, South Africa
S. Alameddine - AST Technology, Switzerland
G. Ferreira - Americas AST Technology, Brazil
F. Masia - Europe ALTech Group, Italy
A. Kaushik - Asia Pacific ALTech Group, United Arab Emirates

11:40 (eaf_029) SwingDoor – immediate mean to reduce CO2 emissions in EAF operation and future improvement by hydrogen burners
M. Leber - INTECO PTI
C. Buchmaier, C. Redl - INTECO, Austria
A. Valoppi - INTECO, Italy

12:00 (eaf_037) Scrap conditioning for improving energy consumption and productivity
O. della Gaspera, V. Zanaglio - ZATO, Italy
C. Mapelli, D. Mombelli - Politecnico di Milano

12:20 lunch

13:30 (eaf_035) Fossil free graphite produced from biomass for greener steel
W. Yang, Z. Shi - KTH, Sweden

13:50 (eaf_021) Exploring the use of alternative non-fossil carbon and energy sources, and novel iron carriers in electric steelworks through a dedicated flowsheet model
I. Martino, V. Colla, O. Toscanelli - Scuola Superiore Sant'Anna, Italy
A. Soto Larzabal - Sidenor I+D, Basauri, Spain





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14:10 (eaf_028) Chromium refining during scrap melting process in an EAF
D. Papamantellou, R. B. Lopes Cancado, F. Schrama - Tata Steel Netherlands
A. Smith - Materials Processing Institute

14:30 (eaf_034) iSlag: The improved control of slag conditions through application of process modelling and new detection systems aiming at improvement of steelmaking process and slag recovery conditions
P. Frittella, L. Angelini, M. Bersani, C. Senes, C. Di Cecca, F. Fredi, F. Guerra, V. Duro, G. Badina, G. Miglietta, G. Mazzi - Feralpi Siderurgica, Italy

14:45 coffee break

Session GREEN STEEL (in Italian language only)

15:10 Decarbonizzazione e definizione di "Green steel"
Alfredo Schweiger - Federacciai

15:35 Il calcolo dell'impatto ambientale nel settore acciaio
Carlo Brondi - CNR-STIIMA

16:00 Approfondimento dello standard GSSC per il processo EAF
Giovanna Battista Landra - Gruppo Beltrame

16:25 TAVOLA ROTONDA
moderata da: Davide Lorenzini - Siderweb
Roberto De Miranda - Ori Martin
Vincenzo Maragliano - Gruppo Feralpi
Marco Geneletti - TenarisDalmine
Carlo Beltrame - Gruppo Beltrame
Alessandro Misul - Cogne Acciai Speciali

17:45 End of the Meeting




POSTER SESSION

(eaf_010) Optimization of deoxidation process to control nitrogen and inclusions of ER50-6 produced by EAF
T. Chen, J. Yang, J. Zhou, M. Yi, Y. Liu - Shougang Group Co. Ltd, China

(eaf_017) iSteel-Expert: a solution to improve situation awareness in the EAF area which enforces process efficiency, reliability and sustainability while favouring preservation and transfer of steelworks know-how
R. Girelli, V. Scipolo - Tenova, Italy
V. Colla, M. Vannucci - Scuola Superiore Sant'Anna, Italy
L. Bianco, L. Battigelli - Siderpotenza, Italy
J. Possik, B. Paree - Institut Catholique de Lille, France
E. Jimenez, B. Argáiz - Universidad de la Rioja, Spain
M. Cardelli, M. Massei - Sim4Future, Italy
A. Bruzzone - Università di Genova, Italy

(eaf_018) Bio-lubricants in cold aluminium rolling application
M. Bellini, S. Pota - Bellini, Italy

NOTE OF THE PROGRAMME This programme is not definitive and it may be slightly modified: title and authors, cancelled or added papers, chairperson, timetable or duration, etc.
Possible changes in the programme will be communicated before the beginning of the Conference



7. Appendix II: English translation of the press release issued on the Open Innovation Platform of regione Lombardia

The iSteel-Expert project, co-funded by the Research Fund for Coal and Steel (RFCS), the European funding program that supports research and demonstration projects in the coal and steel sectors, started in July 2023.

The project is coordinated by Tenova, a leading company in the development and supply of sustainable solutions for the green transition of the metallurgical industry, with headquartered in Castellanza (VA).

The partnership is characterized by interdisciplinarity and extensive experience in the steel sector and in the technologies to be implemented. Three different countries are represented - Italy, France and Spain - thus ensuring a wide dissemination of the results.

In addition to the coordinator Tenova, the consortium comprises Siderpotenza; Sant'Anna School of Advanced Studies; Institut Catholique de Lille; Universidad de la Rioja and SIM4future (spin-off company of the University of Genoa).

iSteel-Expert aims at developing in an industrial environment (up to TRL 7) a virtual system capable of: monitoring the progress and events of the process, 24 hours a day, 7 days a week; by analysing information to produce relevant KPIs and suggest actions to improve and/or correct steelmaking operations.

The intelligent system will act as an expert in the collection and analysis of information from the Electric Arc Furnace that was recently installed by Tenova at the Siderpotenza plant, by substantially increasing the quality of the information needed for the operator's decision-making process. The system, based on AI and IoT, will support standard and maintenance operations and, thanks to the enhancement of human management capabilities, will detect any significant events and their consequences.

Finally, iSteel-Expert will implement a knowledge-based approach that, integrated into a specific immersive and interactive training tool, which will foster the preservation, transfer and continuous evolution of knowledge assets.

The use of data and KPIs and the application of innovative training processes based on "gaming", in addition to drastically reducing the time required to provide comprehensive training, will reduce the time spent by experts and trainees in potentially hazardous areas.

With iSteel-Expert, technology, therefore, becomes a tool to put back at the center not only the efficiency of the production plant, but also the well-being of workers, limiting as much as possible human exposure to potentially hostile environments.

To learn more about the topic, we point out that a website dedicated to the project will soon become available, but subscriptions to the LinkedIn group are already open <https://www.linkedin.com/company/isteel-expert/>