

iSteel-Expert Newsletter No 1

Situation awareness is key to ensure process reliability, health and safety at the workplace and low environmental impact. On the other hand, the steel industry suffers from ongoing and foreseen loss of expertise, as about 30% of workforce will leave the sector by 2030. The creation of attractive and stimulating working conditions that benefits from the most up-to-date digital solution is a way to face the haemorrhage of highly skilled people and attract new talents.

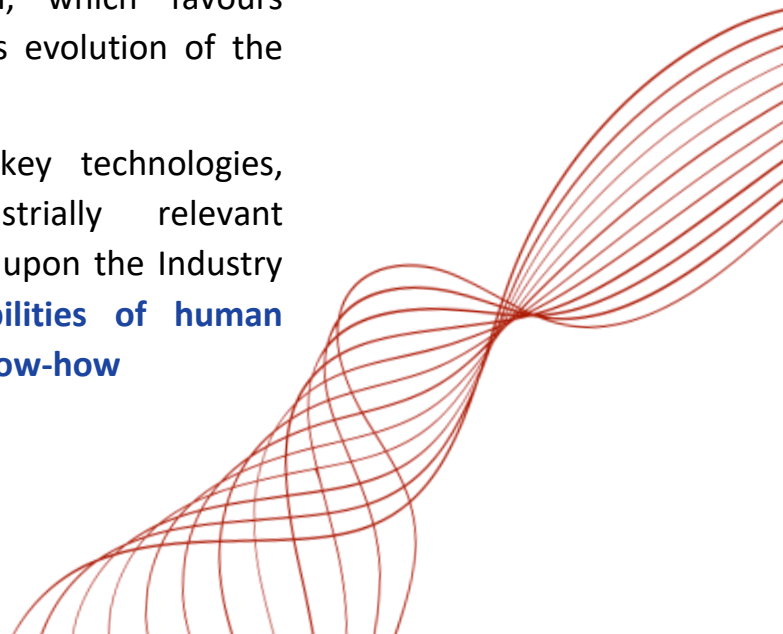
The challenge of the project

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 analysing 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.

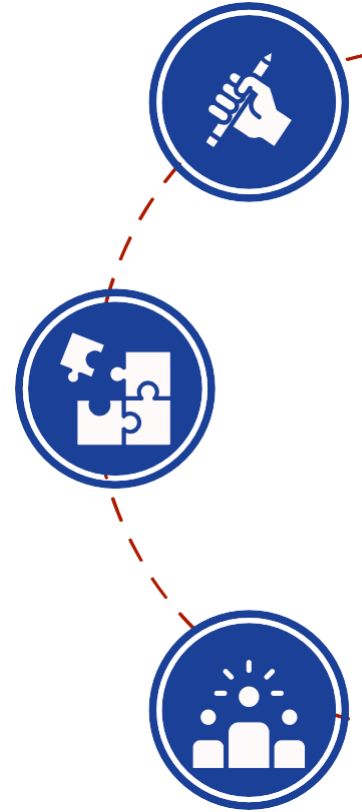
A knowledge-based approach is integrated in an interactive immersive training tool, which favours preservation, transfer and continuous evolution of the company's wealth of knowledge.

iSteel-Expert combines 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**



The Consortium

iSteel-Expert project will be carried out by interdisciplinary and well-balanced consortium with large experience in the steel sector and the technologies to be implemented. Three different countries are represented (Italy, France and Spain), ensuring wide dissemination of project results and replication of solutions proposed. The consortium involves two large companies (**TENOVA S.p.A** and **Siderpotenza S.p.A.**), 3 Academies (**Scuola Superiore Sant'Anna**, **Institut Catholique de Lille**, **Universidad de la Rioja**) and one spin-off, (**Sim4Future s.r.l.s.**) with complementary skills that enable optimal coverage of the different project activities.



The methodology

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.

