

CONTROL^{IN}STEEL

Deliverable 4.3: Holding of a workshop on future research topics

Preliminary Version: revised version 2023-02-21
This deliverable will be updated.



1. Project summary

The project ControlInSteel is a dissemination activity. Focus of the dissemination are advanced control and automation concepts in the downstream process chain of the European steel production.

Today, knowledge engineering is a mature tool for analyzing problem solutions paths chosen by research projects as functions of impact, effort and problems. In ControlInSteel, controlled vocabularies will be developed, extended to taxonomies and ontologies to describe the interplay between chosen method, targeted problem and impact. Outcome of the project will be a systematic analysis which methods have been the most effective ones for reaching the desired impact.

At the center of any dissemination project is the distribution of results. On the one hand by discussing the results found by the ControlInSteel evaluation. On the other hand, by broadening the knowledge about those former project results that are evaluated by the project.

ControlInSteel started within the global COVID-19 crisis. The projects initial plan to conduct face-to-face workshops for the dissemination was slightly changed towards digital workshops and on-demand course material. The project team believes, that with this approach, the dissemination work will be even more reusable for the future.

2. Workshop on future research

2.1. Workshop agenda

The last workshop of the ControlInSteel dissemination series was entitled “**The future of control in steel sector**” and dedicated to following agenda:

- **Andreas Wolff**
Welcome and introduction
- **Joaquin Ordieres-Meré**
Quantum computing in control applications for the steel sector
- **Andreas Wolff**
On some open points in modelling and model-predictive control
- **Raffaella Grieco, Alessio Ventura,**
AI and Big Data in Control
- **Marcus Neuer**
Automation of complex process chains supported by artificial intelligence
- **All speakers**
Plenary discussions

It was conducted on 14.07.2022, 11:00 and had a duration of 2 hours and 20 minutes. A joint group of ca. 30 experts from control theory and steel production were present. The last slot contained a short wrap up in form of a plenary session to summarize the main points demonstrated in the talks. It also functioned for retrieving information from the audience with regard to these topics.

The workshop was prepared in advance by the ControlInSteel team in different preparatory meetings and telecons.

2.2. Overall topics retrieved by the workshop

A clear focus was placed on application topics that have been sparsely or even never addressed in steel research: a) Quantum computing, b) Green steel production and c) Artificial intelligence and application of machine learning. These topics were then used as outline for our Roadmap for Future

Research in Control and Automation of Downstream Steel processing (Deliverable 5.1). While this present deliverable 4.3. just states the conductance of the workshop, Deliverable 5.1 is a different, separate report that summarizes the content in great detail.

2.3. Organisation effort

The organization of the workshop was done by the European Steel Technology Platform (ESTEP), which is a subcontractor in the ControlInSteel project. They performed the workshop hosting in Zoom and managed the question and answers after the talks and during the plenary session.