# Dissemination of the heating technology research results for emission minimization and process optimization towards todays fossil-free heating agenda

RFCS-2021

Grant agreement No 101057930

## Presentations for dissemination

Deliverable 3.3

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Dissemination level: Public

## Content

# 1 Presentations

The presentation for dissemination is based on the State of the Art analysis performed in D3.2. The presentation was held in the final workshop on the future road map. Therefore, the highlights of State of the Art analysis were presented and a clear explanation of physical mechanisms, measuring systems, modelling techniques and results, safety issues, impact on CO2 emissions were given.

The presentations where additionally promoted via LinkedIn and are available on the Website as pdf-download.

The following presentation with slides of each Topic (1 to 5) were held on 14 December 2023:

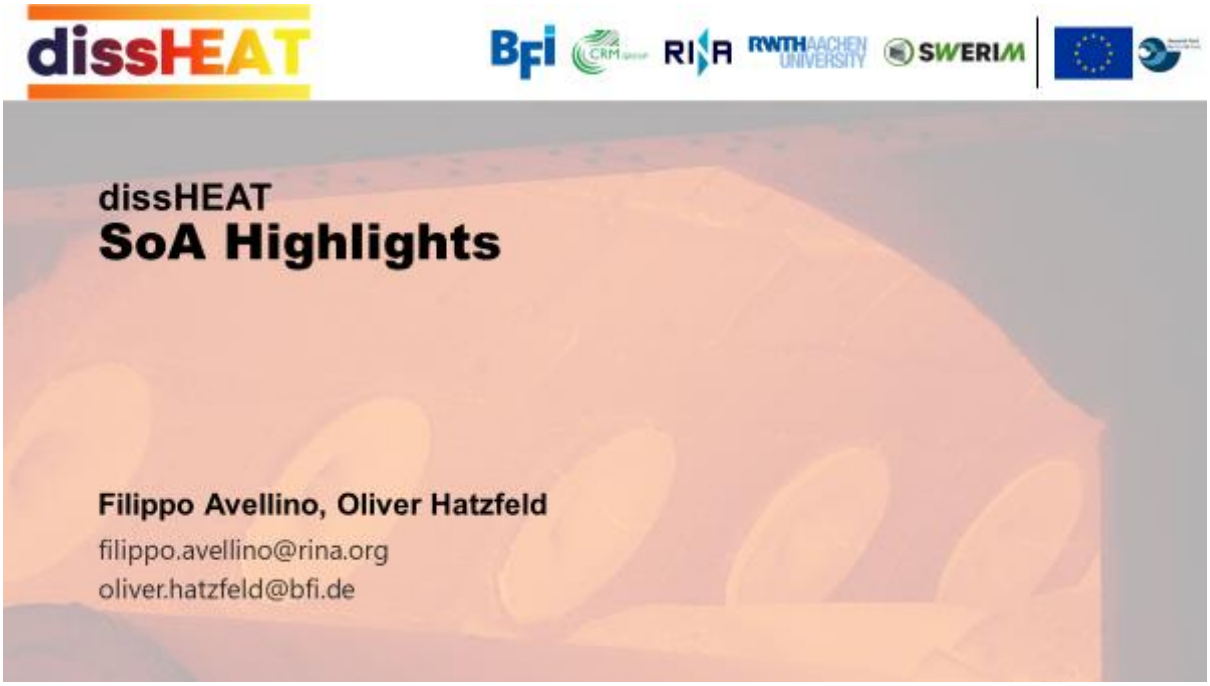



**Fig. 1:** Presentation title

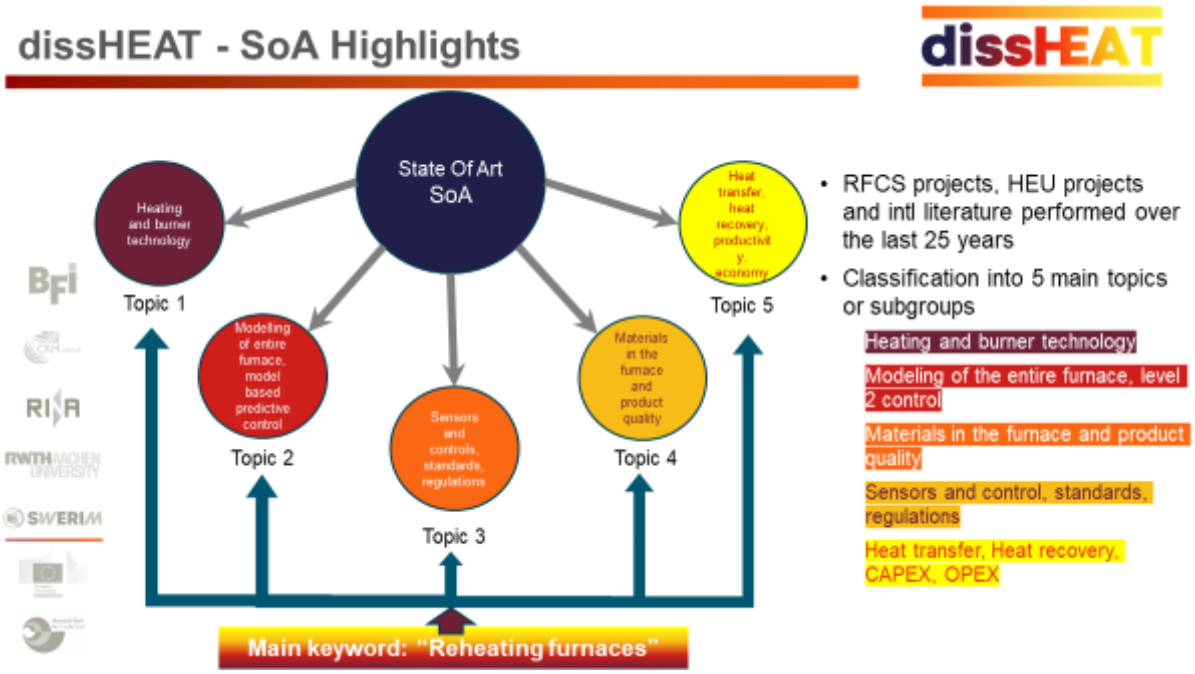



**Fig. 2:** Methodology and project topics

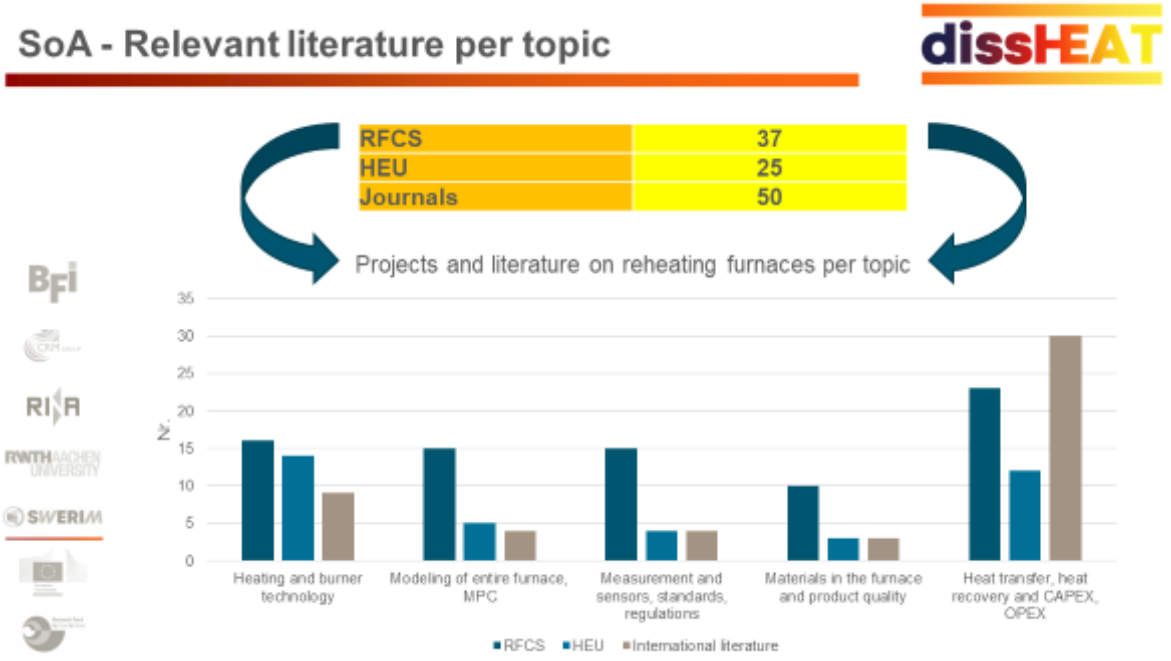



**Fig. 3:** Relevant reviewed literature per dissHEAT topic

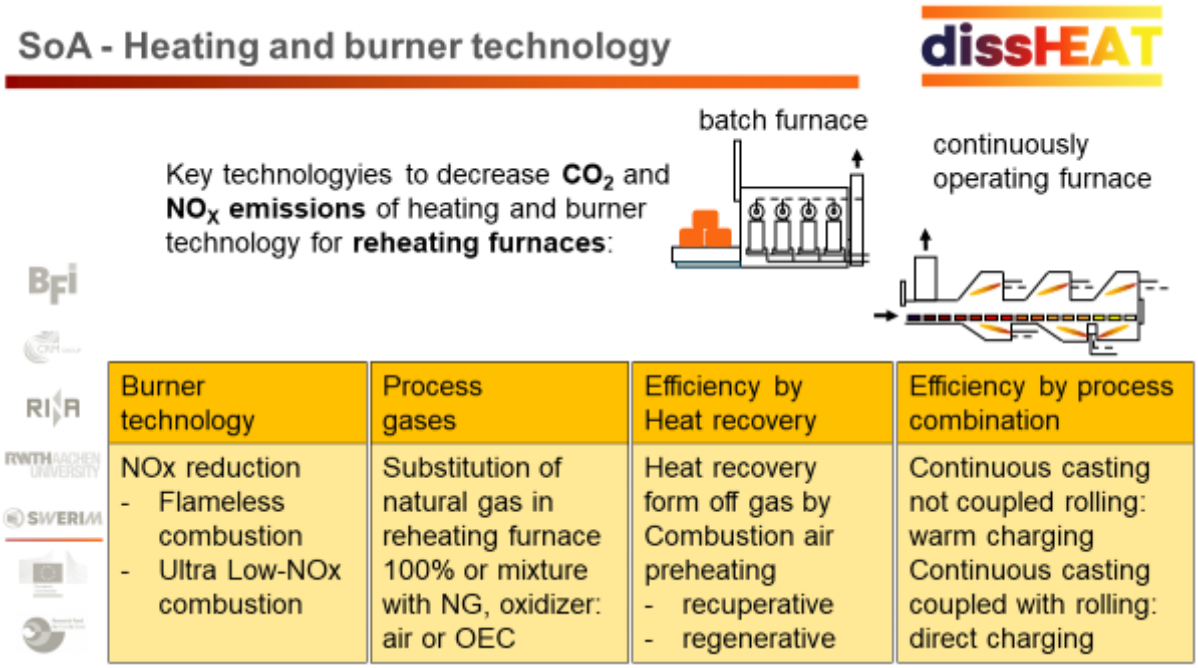



**Fig. 4:** Topic Heating and Burner technology – key technologies

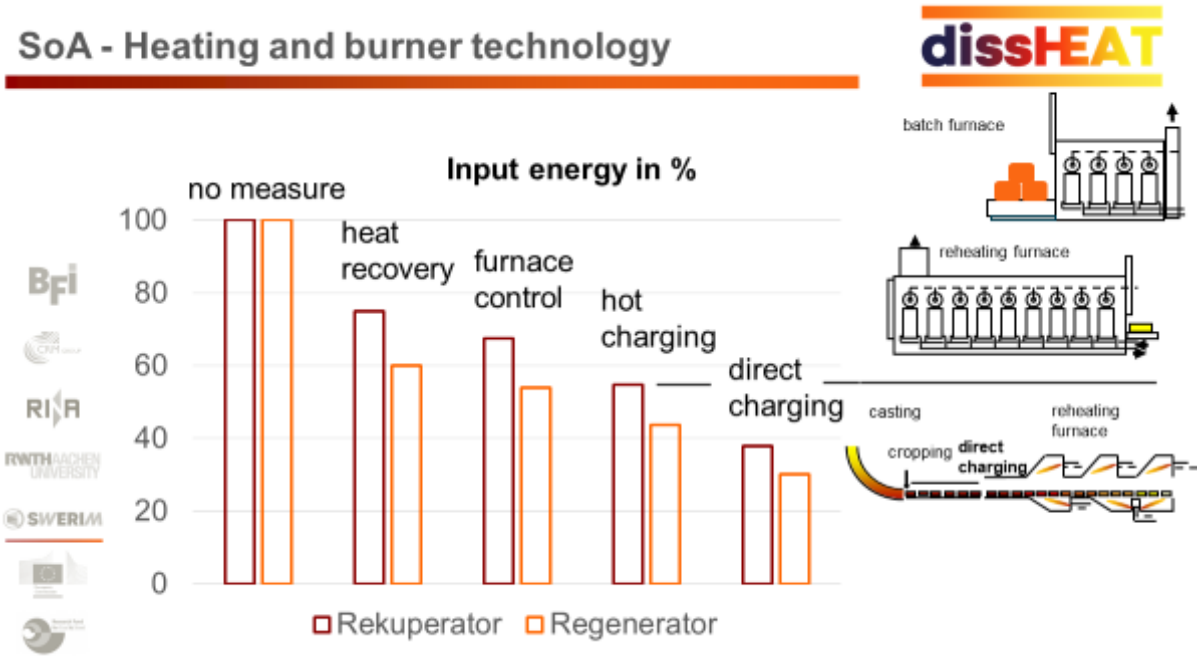
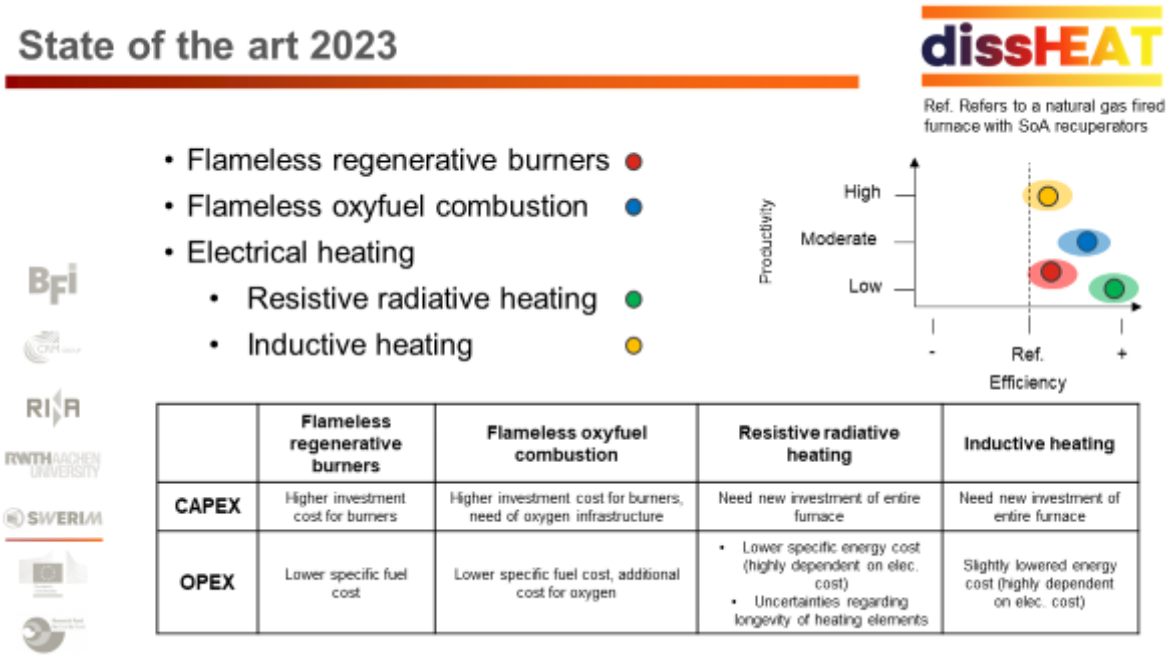



**Fig. 5:** Topic Heating and Burner technology – SoA saving potentials




| | Flameless regenerative burners | Flameless oxyfuel combustion | Resistive radiative heating | Inductive heating |
|---|---|---|---|---|
| CAPEX | Higher investment cost for burners | Higher investment cost for burners, need of oxygen infrastructure | Need new investment of entire furnace | Need new investment of entire furnace |
| OPEX | Lower specific fuel cost | Lower specific fuel cost, additional cost for oxygen | • Lower specific energy cost (highly dependent on elec. cost)<br>• Uncertainties regarding longevity of heating elements | Slightly lowered energy cost (highly dependent on elec. cost) |

**Fig. 6:** Topic Heat transfer, heat recovery, productivity, economy, CAPEX, OPEX – Productivity and economy

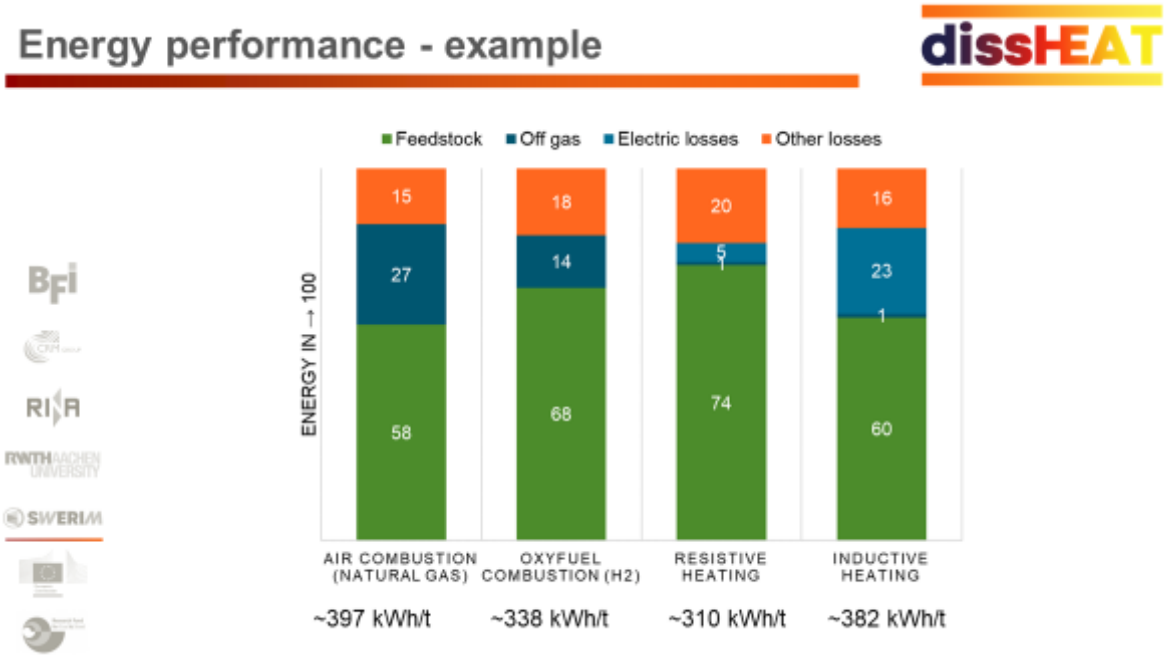



**Fig. 7:** Topic Heat transfer, heat recovery, productivity, economy, CAPEX, OPEX – SoA saving potentials

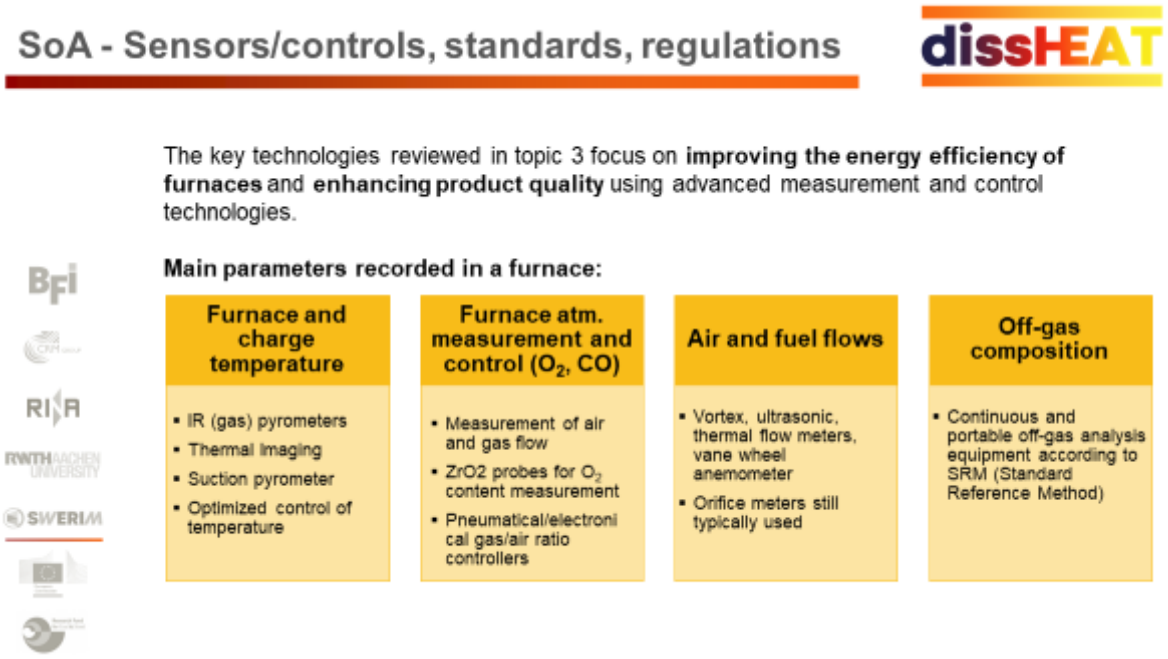



**Fig. 8:** Topic Measurement and sensors, measurement-based furnace control (level 1); standards, regulations – key technologies

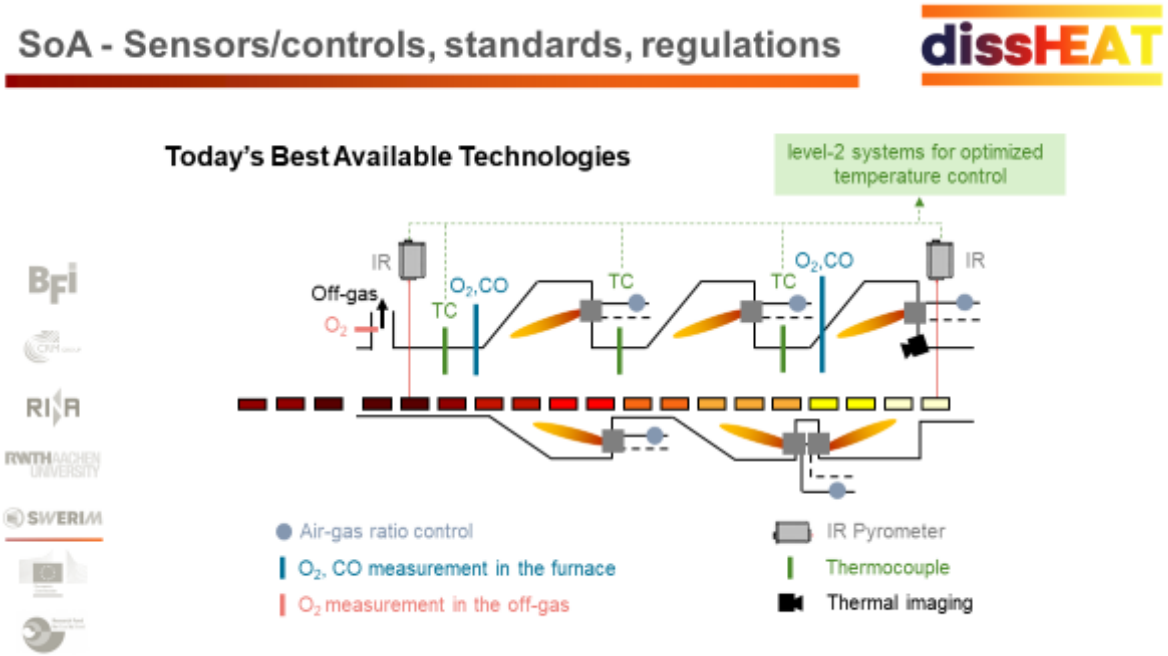



**Fig. 9:** Topic Measurement and sensors, measurement-based furnace control (level 1); standards, regulations – Best Available Technologies

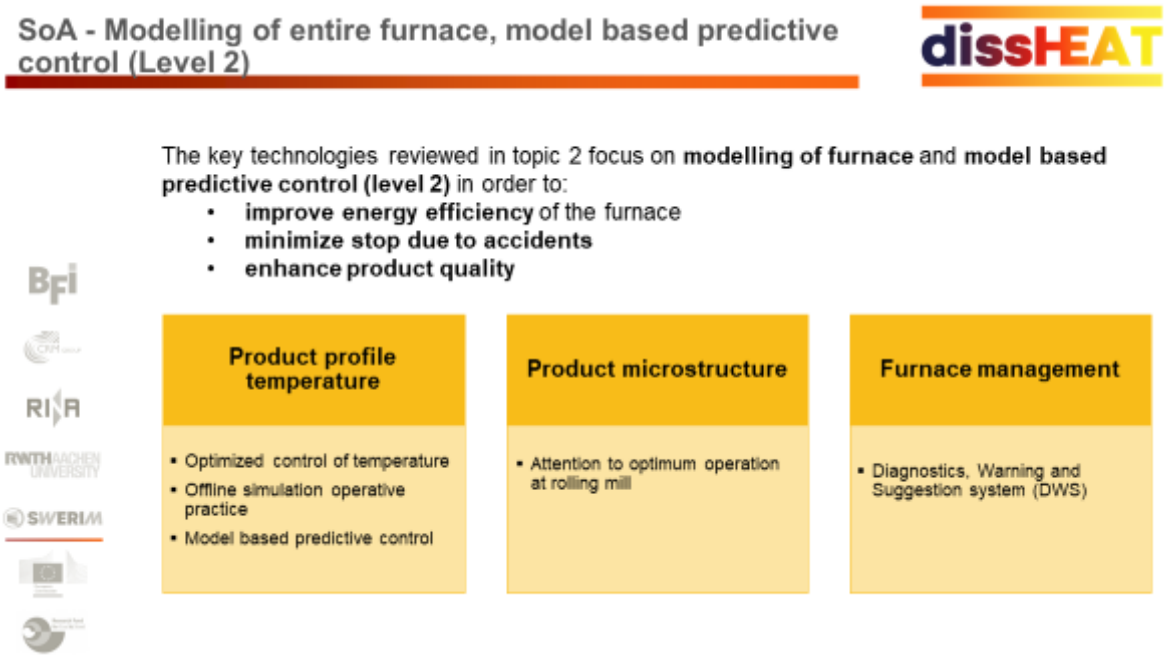



**Fig. 10:** Modelling of entire furnace, model based predictive control (level 2) – key technologies

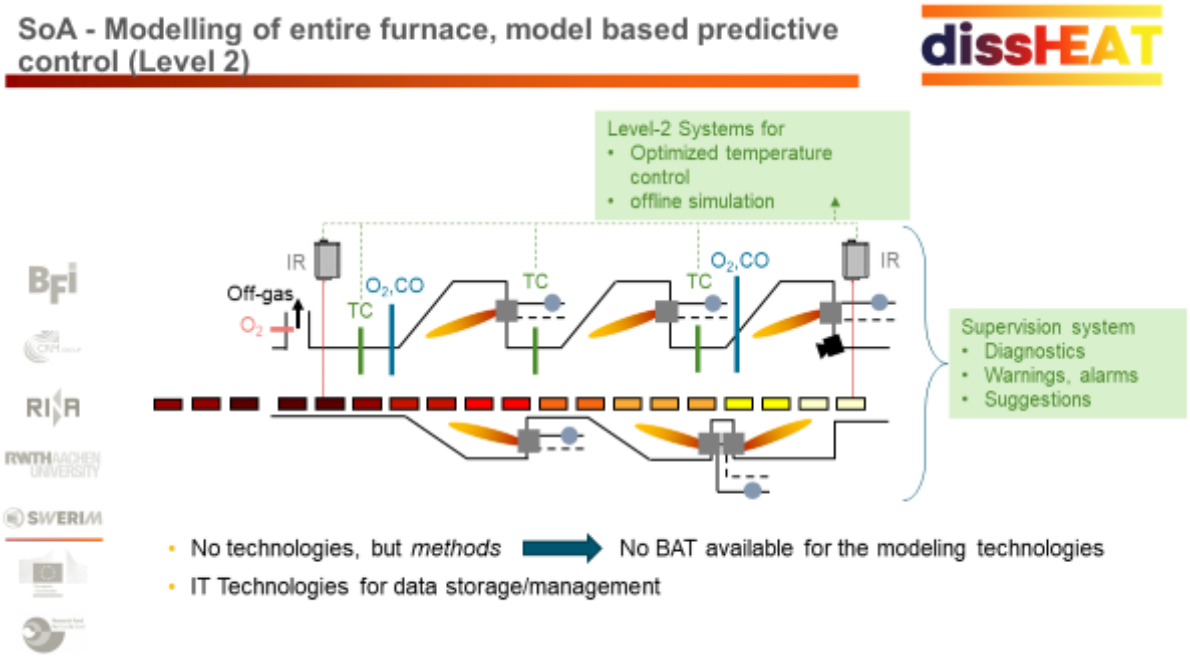



**Fig. 11:** Modelling of entire furnace, model based predictive control (level 2) – current methods

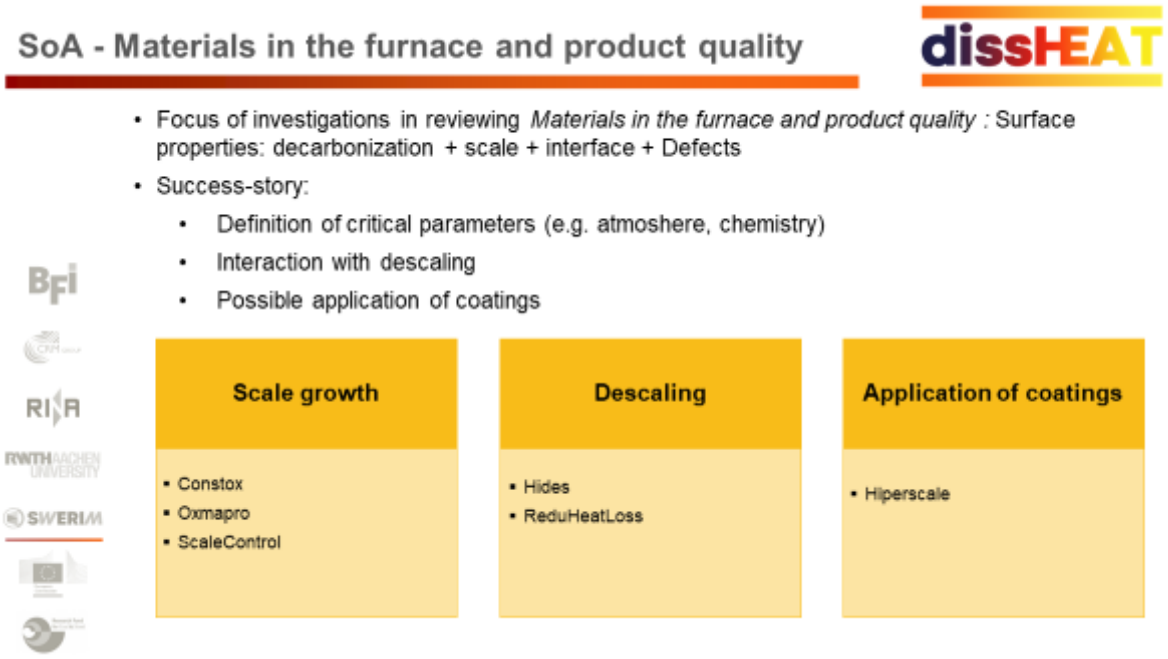



**Fig. 12:** Materials in the furnace and product quality – focus of investigations

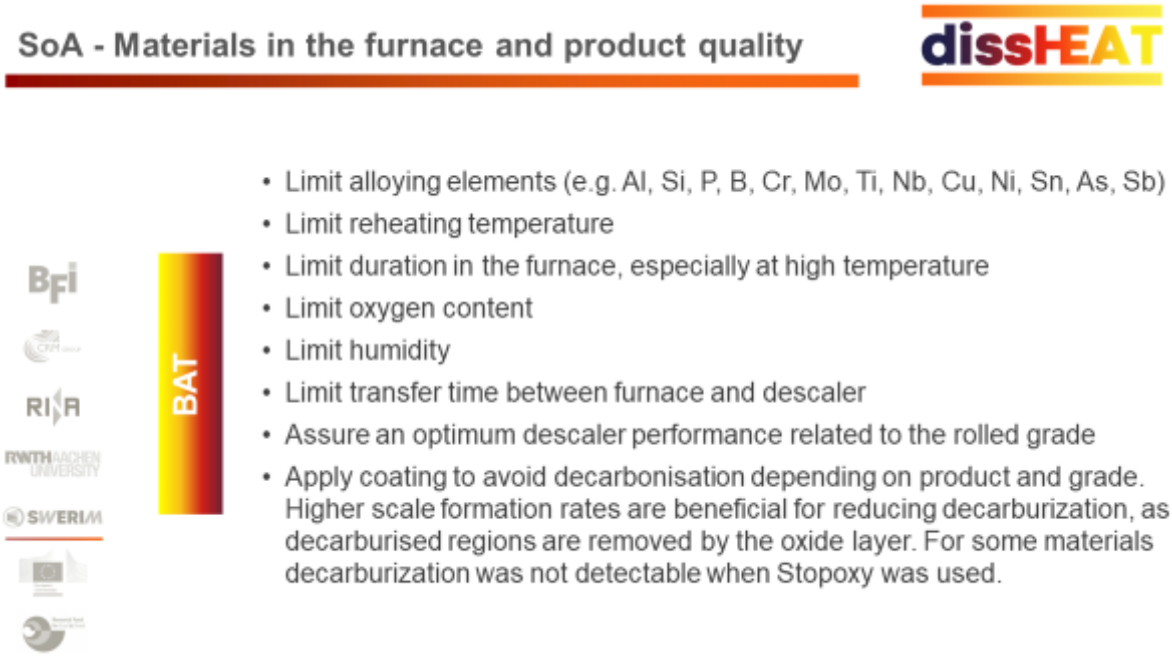



**Fig. 13:** Materials in the furnace and product quality – Best Available Technology

# 2 Figure Index



**Acknowledgement**

This project has received funding from the Research Fund for Coal and Steel under grant agreement No 101057930.

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