Understanding the digitalization of work in the steel industry using the sociology of work, industrial sociology and STS

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Data and decentralised AI for a competitive and green European Metallurgy Industry

- EU Horizon 2020 funded project (2022-2025)

- Partners – CELSA Group (France, Spain, Poland), FdT & SSSA (Italy), BFI (Germany), ATOS (France), EXUS (Greece), Switzerland (Mandate International), Cardiff U. (UK)

- AI – Federated Learning, Continual Learning, non-autonomous AI (worker agency

- ALCHIMIA will be developed for and deployed at CELSA

- Scalability and replicability of ALCHIMIA at Fonderia di Torbole (FdT)

- CELSA – prescriptive ALCHIMIA, company already uses AI to analyse scrap

- FdT – predictive ALCHIMIA
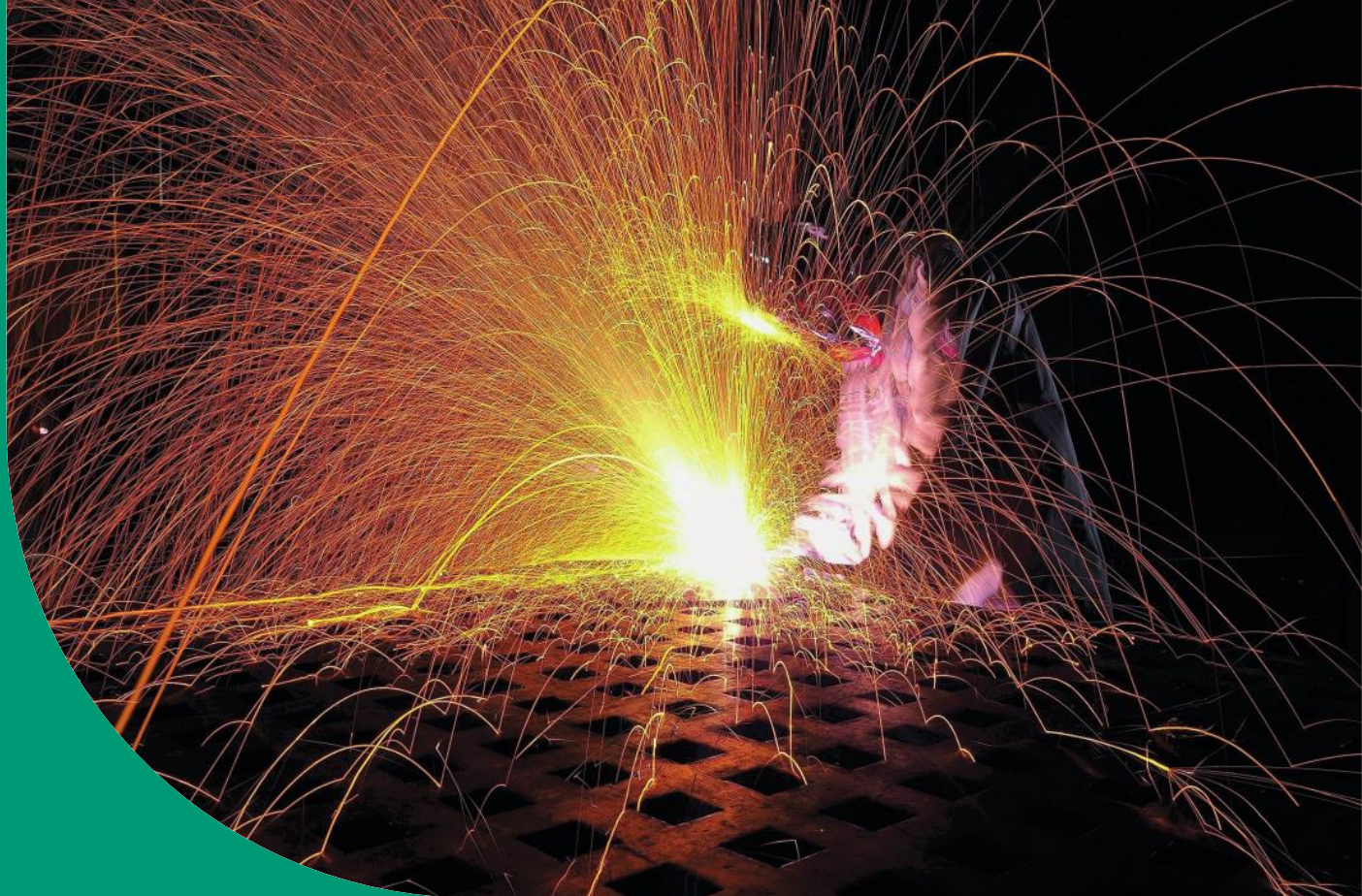
Cardiff University Empirical Research

- **'Human factor analysis'**

- **HCAI design assessment**

- **Ex-ante surveys and interviews at 4 sites (Italy, Poland, France, Spain) – May and June 2023**
  - current perspectives and awareness of AI and ALCHIMIA

- **Ex-post surveys and interviews – 1-1.5 years after ex-ante stage**
  - post-insertion perspectives and evaluation of ALCHIMIA

- **Deliverables:**
  - Guidelines for trust, safety and human use of AI tools in heavy industrial environments, including recommendations for human-centric technology development and insertion
  - Skills development strategy, training, education plan and products

Sociology of Work, Industrial Sociology, STS

- **Critical empirical sociology/STS approach to specific 'Big Data' practices, AI (and waste work)**

- **Analysis of social and organisational barriers and enablers of new AI and big-data technology**

- **Analysis of the work requirements and the implications for work organisation, worker autonomy and decision-making, tacit knowledge use and skill use/utilisation**

- **Sociology of digitalization of work/industry (skills needs, job displacement, intensification, privacy, trust)**

- **STS approach - How data objects and technologies (AI) move through space and time connecting different sites of practice across data infrastructures**

THANK YOU!

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ALCHÌMIA