

REEDDEAM

COMPETENCE DEVELOPMENT FOR
THE INDUSTRY'S CLIMATE TRANSITION

Industrial Graduate School

INDUSTRY AND UNIVERSITIES IN COLLABORATION



The Industrial Graduate School



Focus: *The industrial green transition*

Goal: *Strengthen research education and the academic environment within 3 key thematic areas*

- Theme 1: CO2-free Metallurgy and Resilient Energy Systems
- Theme 2: AI and Automation in the Green Transition
- Theme 3: Effective and Efficient Circular Industry

Unique elements:

- *Right focus on industrial needs and perfect timing*
- *Strong industry support, collaborating research environments, and networks*
- *Potential to generate long-term industrial value and industrial research competence.*



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Team REEDEAM



Konstantinos Kyprianidis

Director, Study Rector
Theme-leader

Theme 1: CO2-free
Metallurgy and Resilient
Energy Systems



Stavros Vouros

Deputy Director



Koteswar Chirumalla

Study Rector



Amy Loutfi

Theme-leader

Theme 2: AI and
Automation in the
Green Transition



Bjarne Bergqvist

Theme-leader

Theme 3: Effective and
Efficient Circular Industry



Martin Karlsson

Industry Council
Coordinator

Cross-disciplinary collaboration between MDU, ORU and LTU

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LKAB **HÄGGLUNDS** **KANTHAL** **Algoryx**
RI SE **Epiroc** **SAFETY** **KOLLMORGEN** **sensrad** **BATIXT**
BATTERY INDEX TECHNOLOGY

KK-stiftelsen

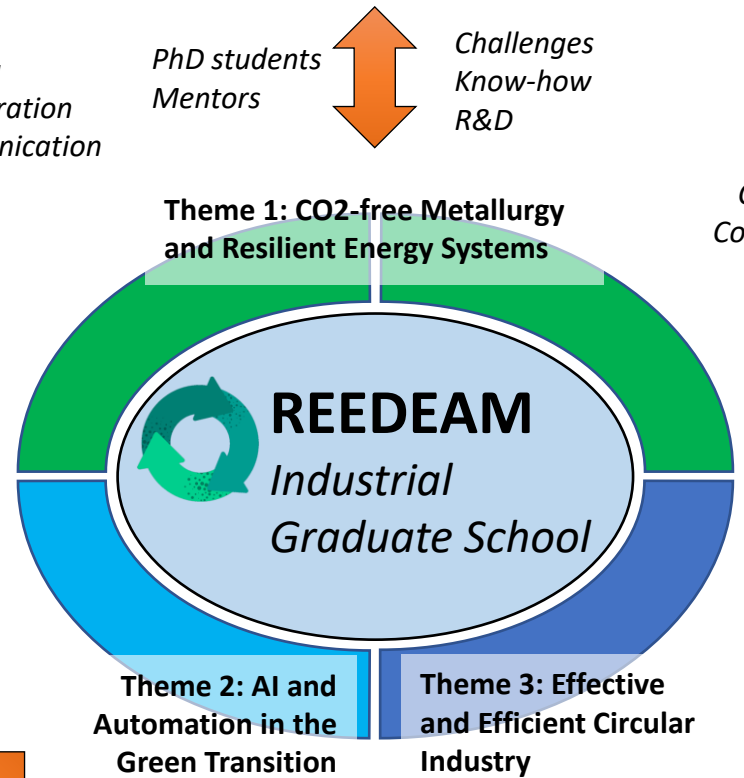
Mälardalens universitet

LULEÅ UNIVERSITY OF TECHNOLOGY

ÖREBRO UNIVERSITET

RI SE

Electrification Hub **Pi!A** Arctic Center of Energy
Process Industrial IT and Automation



Other funding

VINNOVA **Vetenskapsrådet** **STIFTELSEN för STRATEGISK FORSKNING**
European Commission **Horizon 2020 European Union funding for Research & Innovation**

Other universities

Other industries

*Funding
Collaboration
Communication*

*PhD students
Mentors* ↔ *Challenges
Know-how
R&D*

*Funding
Co-creation
Collaboration*

*Supervisors
Students
Research* ↔ *Courses
Theses*

*Exchange possibilities
Research collaboration*

*Laboratories
Testbeds
Support*

*Research projects
Experience sharing*

*Postdoc support
Networks
Events*

Theme I – CO₂-free Metallurgy and Resilient Energy Systems

- Flexible and resilient grids with Energy Storage
- New processes (need not be H₂-based)
- Decarbonization and optimization of waste slag and other metal processing
- Process- and energy optimization
- Net-zero mining
- Holistic optimization (process, energy, cost, time) of recycling

Theme II - AI and Automation in the Green Transition

- Optimization of a highly automated process step in battery production
- Sensor informatics for process modelling
- AI-based maintenance strategy
- Quality control methods and assessment process improvement of battery production
- Efficient Energy consumption with Intelligent Automation
- Cybersecurity and AI

Theme III – Effective and Efficient Circular Industry

- New circular materials with AI
- The impact of business models on product development & production
- Green solvents for recycling
- Logistics for battery reuse and circularity
- Life Cycle Assessment of Circular Production
- AI-driven materials development

6 Research Subjects

Mälardalen University

- Energy & Environmental Engineering
- Industrial Systems

Örebro University

- Computer Science

LTU

- Minerals Processing
- Product Development
- Quality & Logistics



=> EU **energy transition** ambitions and **SDG** targets are resulting in:

- Increased electrification and H2 production in heavy-industry (and transport).
- Growing share of non-dispatchable renewable energy in the grid.

=> Unprecedented levels of power generation and **grid flexibility** are expected, while geopolitical tensions are eroding energy security and system **resilience**.

The **REEDEAM industrial graduate school** offers:

- The perfect arena for companies to investigate new possibilities in common mindset with all participating actors.
- Critical mass and collaborative research on key areas of competence.
- A central position in supporting the needs of participating industrial actors.

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INDUSTRY AND UNIVERSITIES IN COLLABORATION



The REEDEAM MSc level courses

