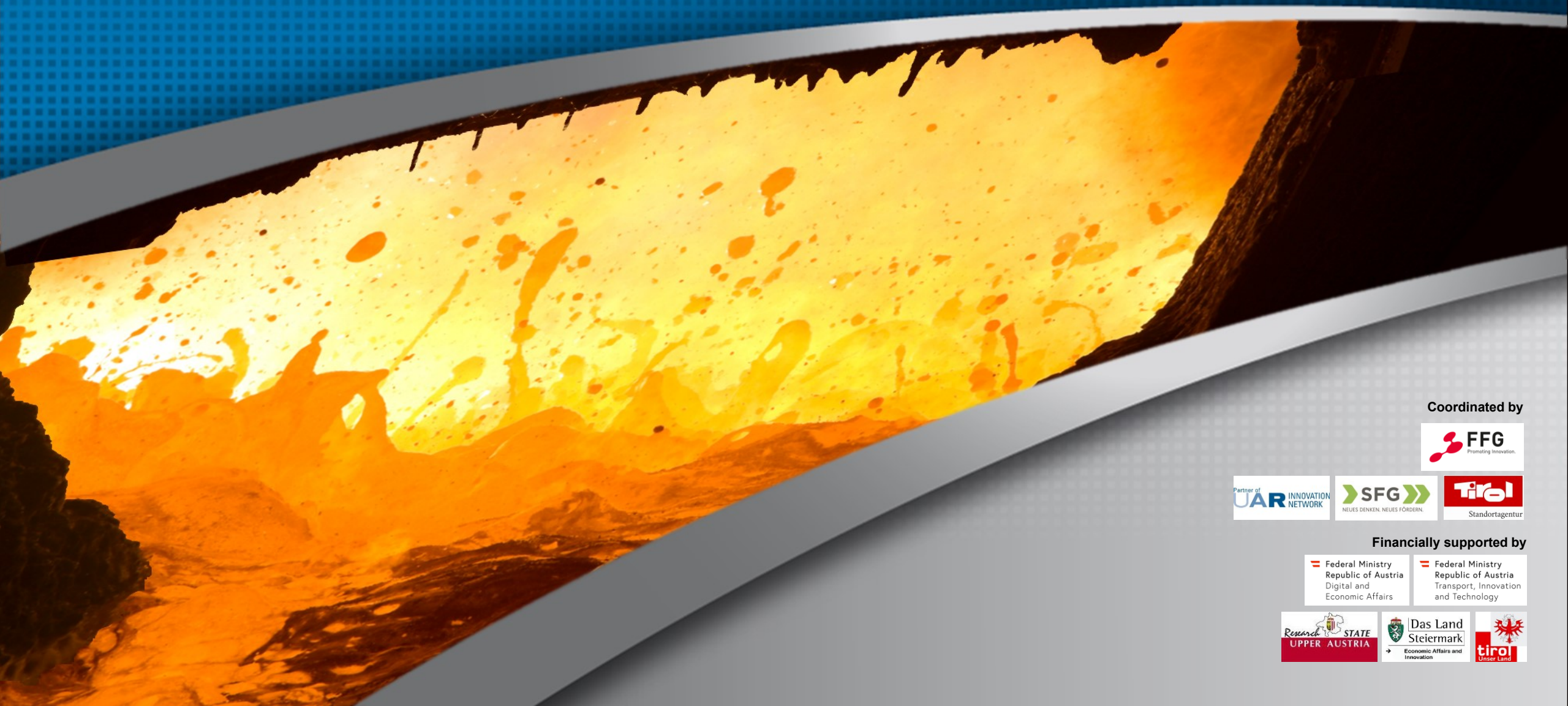
K1-MET overview

K1 MET
metallurgical competence center



Coordinated by

FFG Promoting Innovation.

Partner of UAR INNOVATION NETWORK

SFG NEUES DENKEN. NEUES FÖRDERN.

Tirol Standortagentur

Financially supported by

Federal Ministry Republic of Austria Digital and Economic Affairs

Federal Ministry Republic of Austria Transport, Innovation and Technology

Research STATE UPPER AUSTRIA

Das Land Steiermark Economic Affairs and Innovation

tirol Unser Land

Motivation

Development of resource intensive processes

COMET K1 - 3rd CALL:

K1-MET - Competence Center for Excellent Technologies in Advanced Metallurgical and Environmental Process Development

Phase I : 2015 – 2019
Phase II : 2019 – 2023

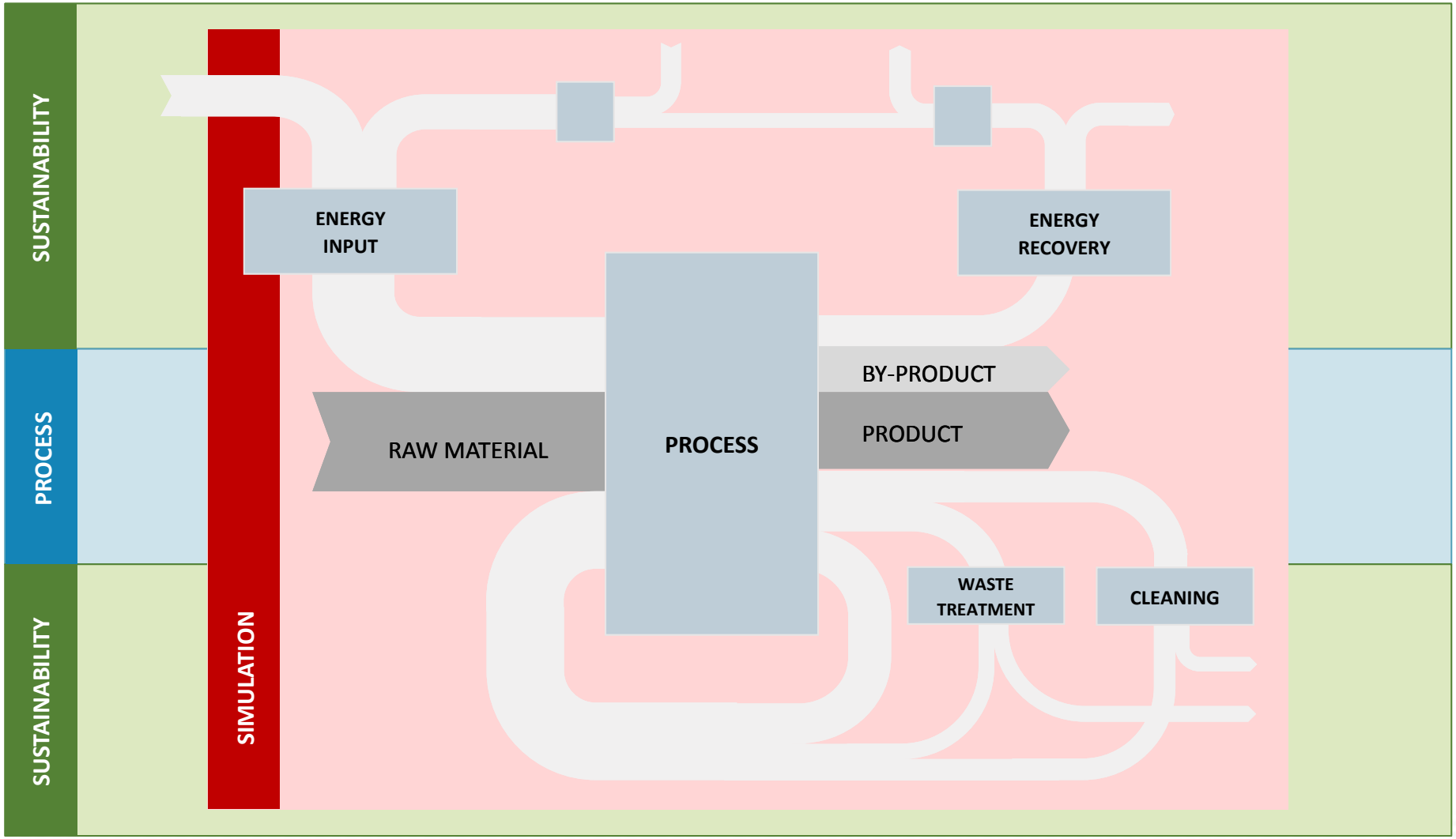
Budget Phase I : 18.7 M€
Budget Phase II: 22.7 M€

Financing: 45 % funding
- **30 % FFG**
- **15 % Federal states**
- **5 % Scientific partners**
- **50 % Industrial partners**

Locations
- **Linz**
- **Leoben**

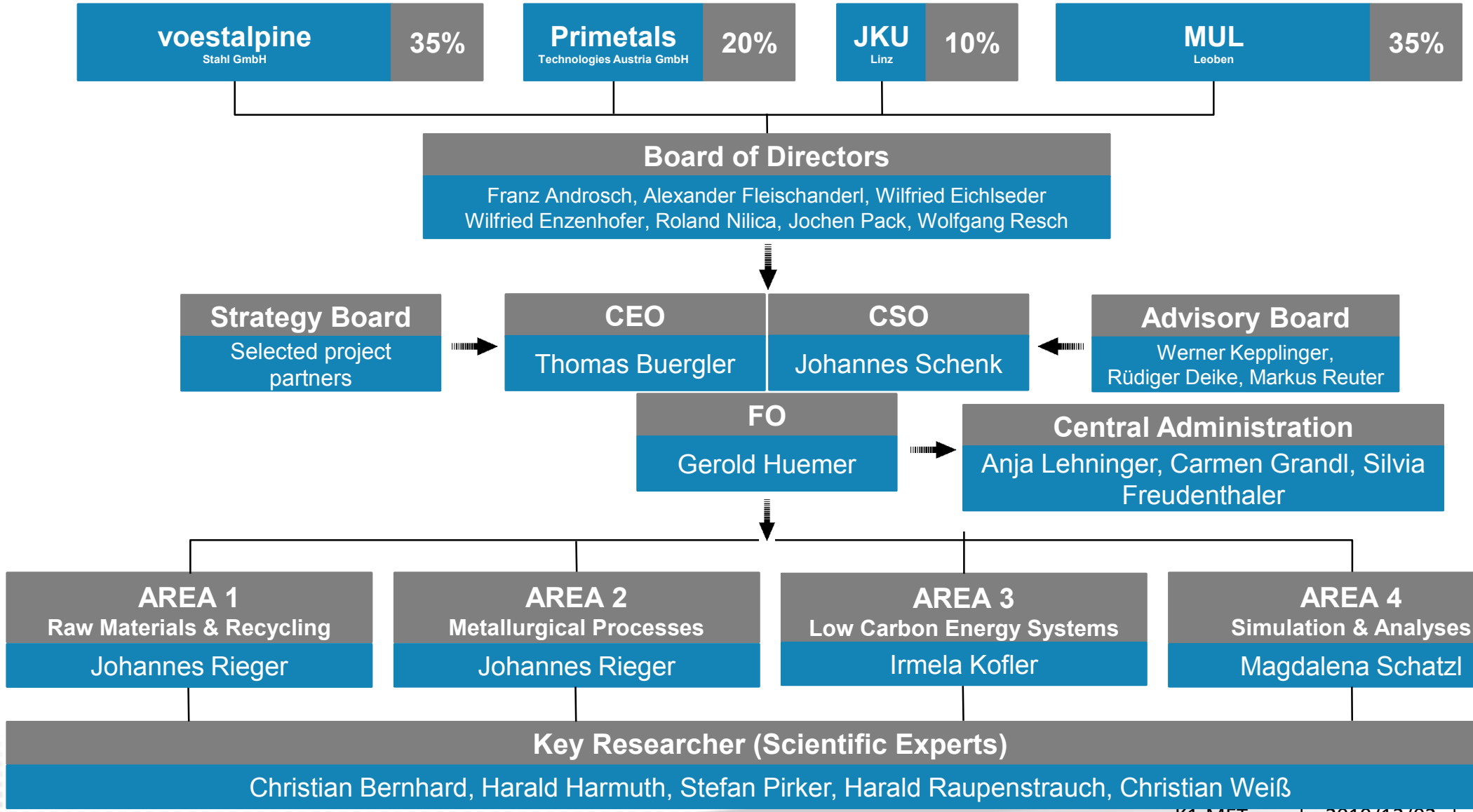
Motivation

Research topics with cross-sectoral approach



K1-MET GmbH

Organization



Research programme 2019-2023

Research areas

Four symbiotic areas:

- **Area 1:** Raw Materials and Recycling
  - Endeavours the best possible utilisation of all resources.
- **Area 2:** Metallurgical Processes
  - Unites the core topics of metallurgical process developments.
- **Area 3:** Low Carbon Energy Systems
  - Is dedicated to the developments of coal-lean steal production.
- **Area 4:** Simulation and Analyses
  - Represents the enveloping area for numerical developments and data analyses.

Research programme 2019-2023

Projects within the funded COMET program

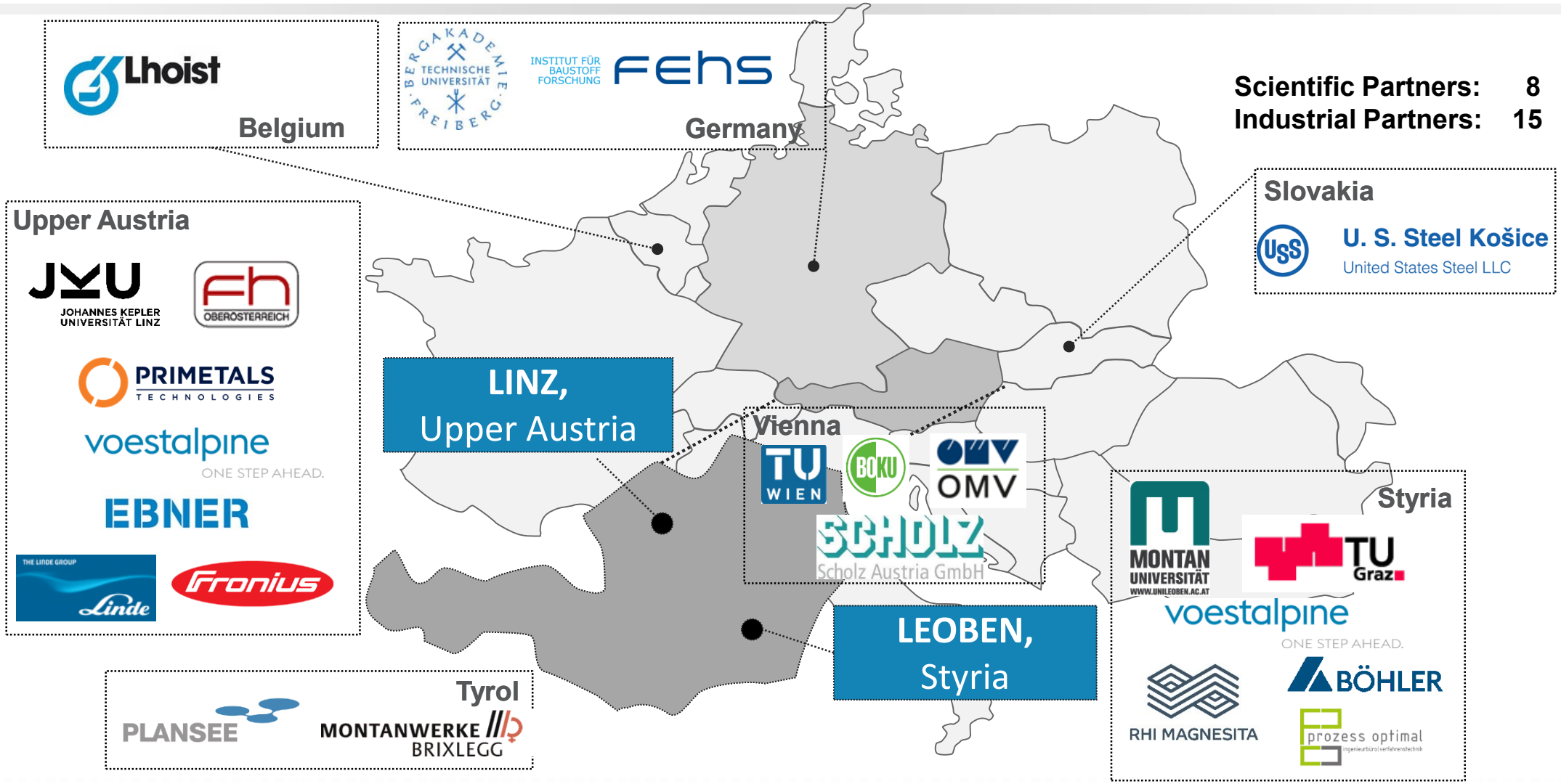
metallurgical competence center

		Project (100% strategic)	Sustainability	Process	Simulation
AREA 1	1.1	Liquid slag properties	O		O
	1.2	Utilization of metallurgical slags	O		O
	1.3	Circular economy of metallurgical waste materials	O	O	O
AREA 2	2.1	Nonferrous metal technologies	O	O	
	2.2	Interaction of thermodynamic and kinetics of LD steelmaking		O	O
	2.3	Thermomechanical modelling of continuous casting and hot rolling	O	O	
	2.4	A procedure for the design of refractory linings	O	O	
	2.5	New mold slag types and viscosity of metallurgical slags		O	
	2.6	ESR - Influence of slag properties on energy consumption	O	O	
AREA 3	3.1	Fundamentals of Hydrogen reduction	O	O	
	3.2	Reforming processes for CO_2-reduction in energy intensive industry	O	O	O
	3.3	Energetic optimization	O		O
	3.4	Metallurgical process simulations	O	O	O
	3.5	Operational optimization of hydrogen plasma smelting reduction	O	O	
	3.6	FluidRed	O	O	
AREA 4	4.1	Tundish and mould modelling		O	O
	4.2	Multiphase fluid flows			O
	4.3	Interacting granular flows			O
	4.4	Fast simulations			O

Location and partners

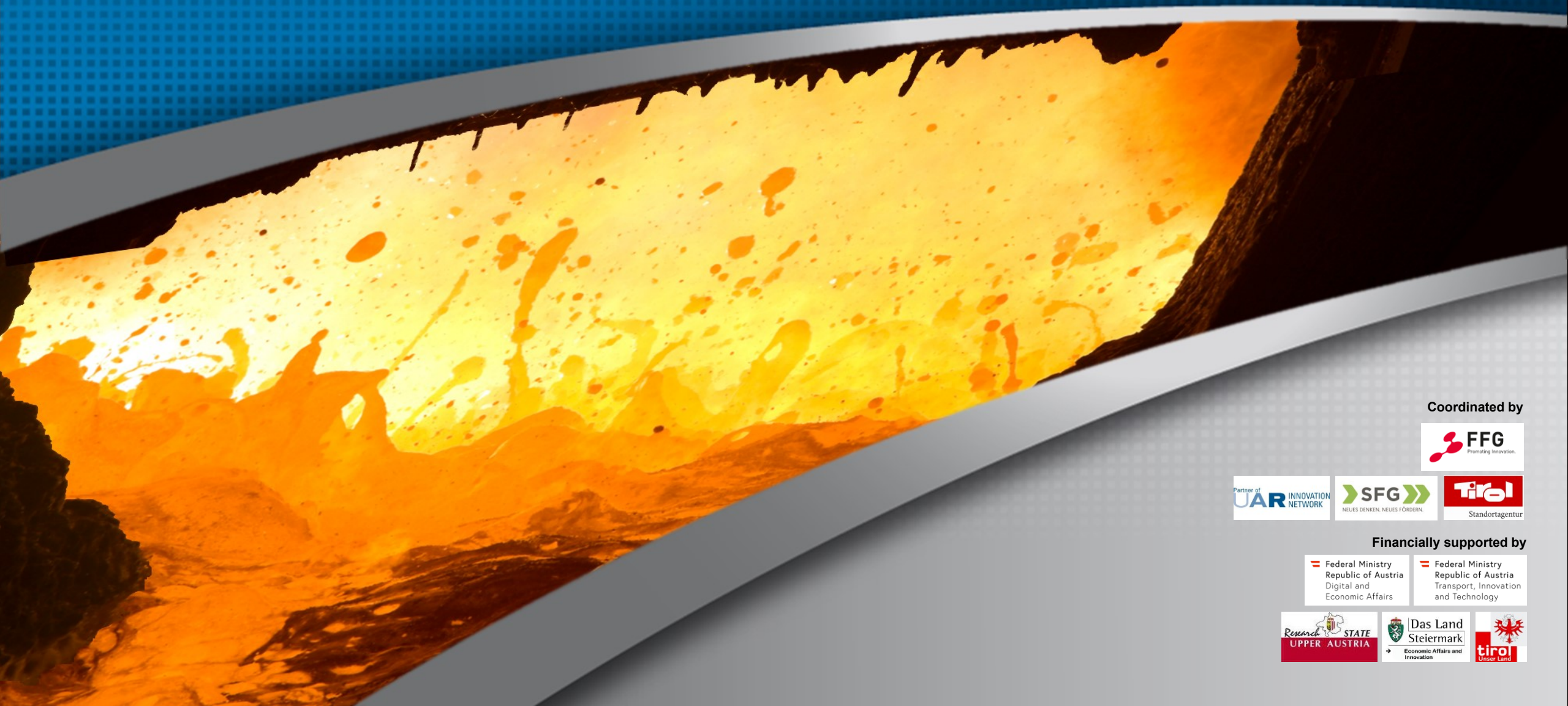
Partners in the funded COMET program

metallurgical competence center



K1-MET overview

K1 MET
metallurgical competence center



Coordinated by

FFG Promoting Innovation.

Partner of UAR INNOVATION NETWORK

SFG NEUES DENKEN. NEUES FÖRDERN.

Tirol Standortagentur

Financially supported by

Federal Ministry Republic of Austria Digital and Economic Affairs

Federal Ministry Republic of Austria Transport, Innovation and Technology

Research STATE UPPER AUSTRIA

Das Land Steiermark Economic Affairs and Innovation

tirol Unser Land