

PREP – Primary resource efficiency by enhanced prediction

Project leader: Pertti Lamberg, professor in Geometallurgy

Organization	Persons
Luleå University of Technology	Pertti Lamberg, Jan Rosenkranz, Cecilia Lund, Viktor Lishchuk, Pierre-Henri Koch, Erdogan Kol
LKAB	Therese Lindberg, Kari Niiranen, Lewis Wild, Mattias Gustafsson
Boliden	Adam McElroy, Iris Wunderlich
Zinkgruvan	Anders Gustafsson, Hassna Aitahmed-Ali, Anja Hagerud
Chalmers	Magnus Evertsson, Magnus Bengtsson, Johannes Quist,
Outotec	Thomas Linqvist, Robert Johansson, Antti Remes

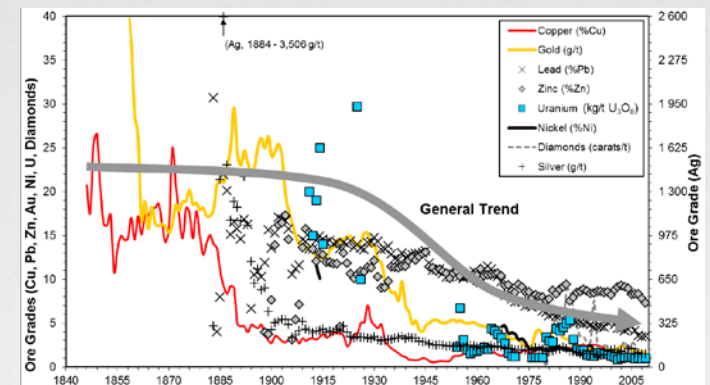
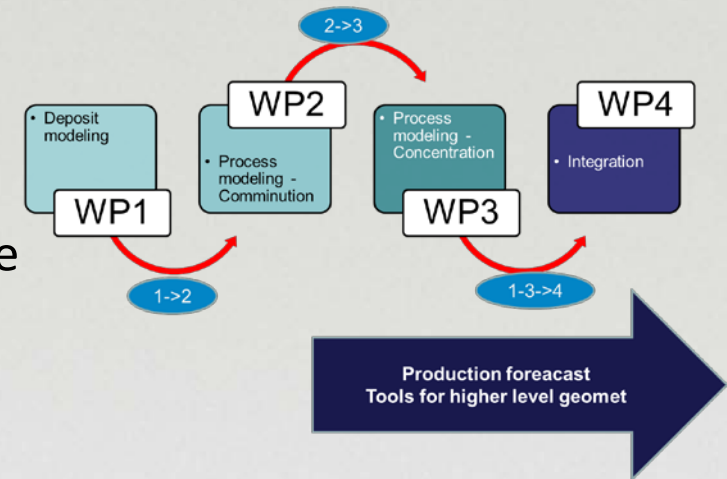
Project purpose and aim

Aim

Develop an integrated modeling and simulation environment for conducting comprehensive model-based prognosis for the beneficiation of primary mineral resources

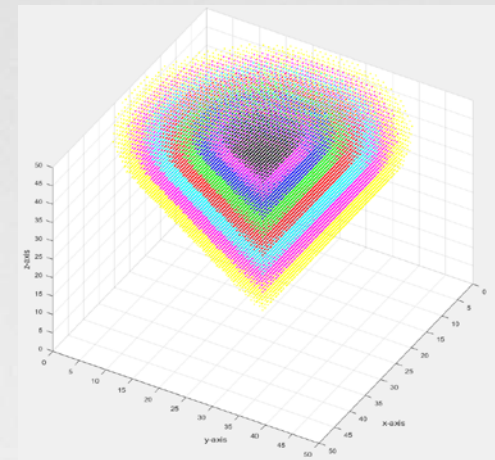
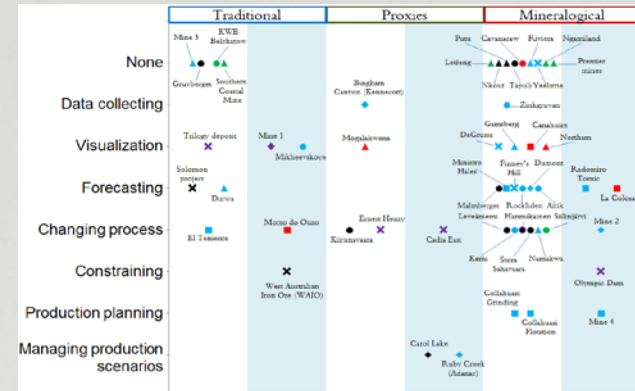
To reach higher level goals

- Increase resource efficiency by holistic resource planning
- Increase energy efficiency
- Reduce environmental impact
- Enables to design more effective and competent processes
- Enables to optimize the whole production chain



Results

- Deposit modeling
 - Review and classification of geometallurgical systems
 - Synthetic ore body created
- Process modeling
 - Crushability and grindability tests done -> model developed -> Model implemented in simulation program HSC Chemistry - Sim
- Case studies: sampling and sample studies on going
 - Leveäniemi (LKAB)
 - Aitik (Boliden)
 - Zinkgruvan (Lundin)
- Publications: 6 published papers and licenciate thesis (Viktor Lishchuk, 20 June 2016)



Next stages

Work package	What next	2014	2015	2016	2017	2018
WP1: Deposit modeling	<i>Block models</i>			Lic		
WP2: Modeling comminution processes	<i>New models (liberation)</i>					
WP3: Modeling concentration processes	<i>New models</i>			Lic		
WP4: Set-up of simulation environment and planning system	<i>Deliver the system</i>					
WP5: Case studies and innovation potential	<i>Leveäniemi, Aitik, Zinkgruvan</i>					PhD PhD