

Conceptual Study – Mine of the Future

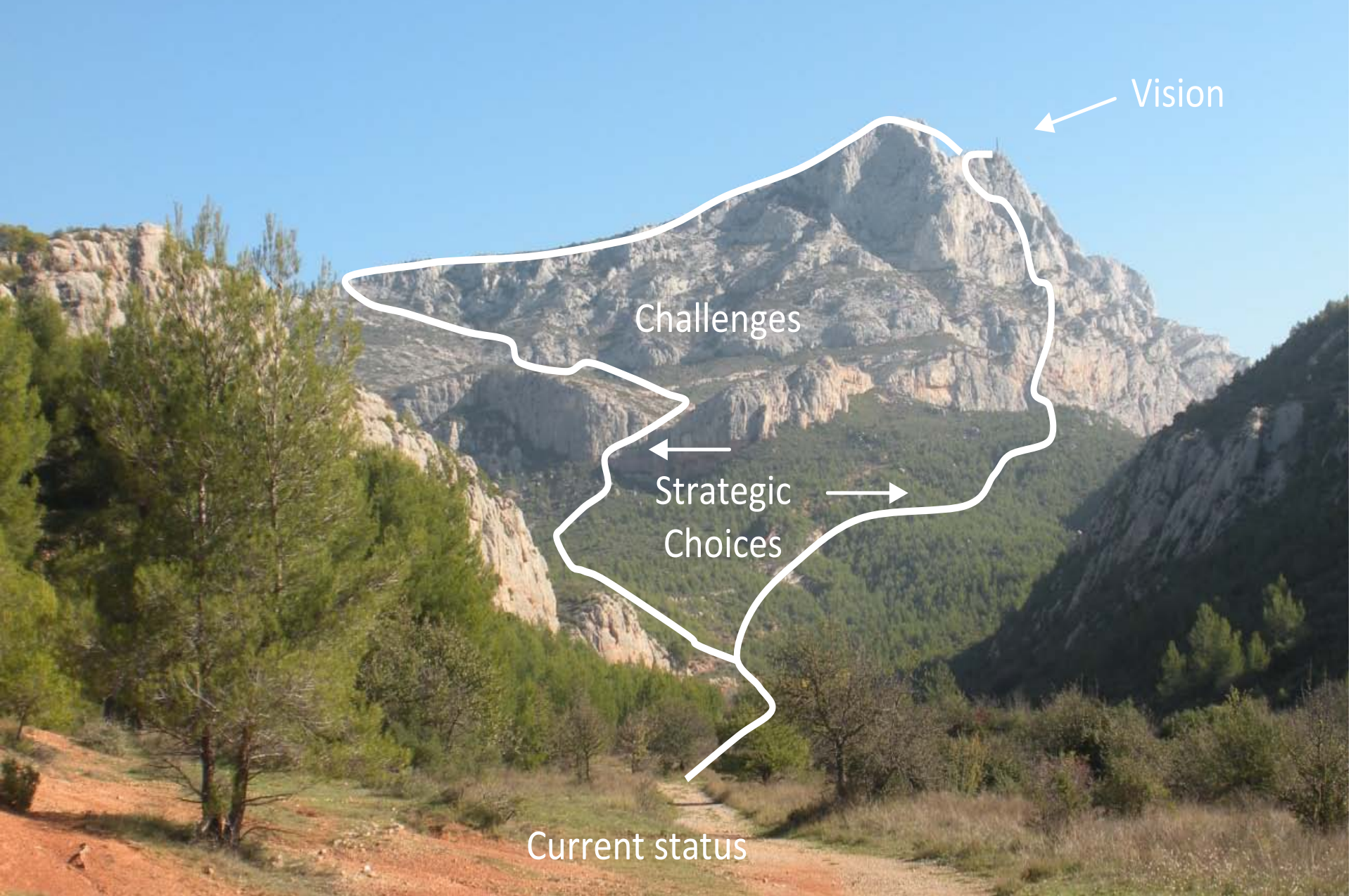
Views on mining by 2030 and beyond

Euro Mine Expo June 8th 2010, Skellefteå

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²CEO Swedish Mining Research Foundation MITU



Vision

Challenges

Strategic Choices

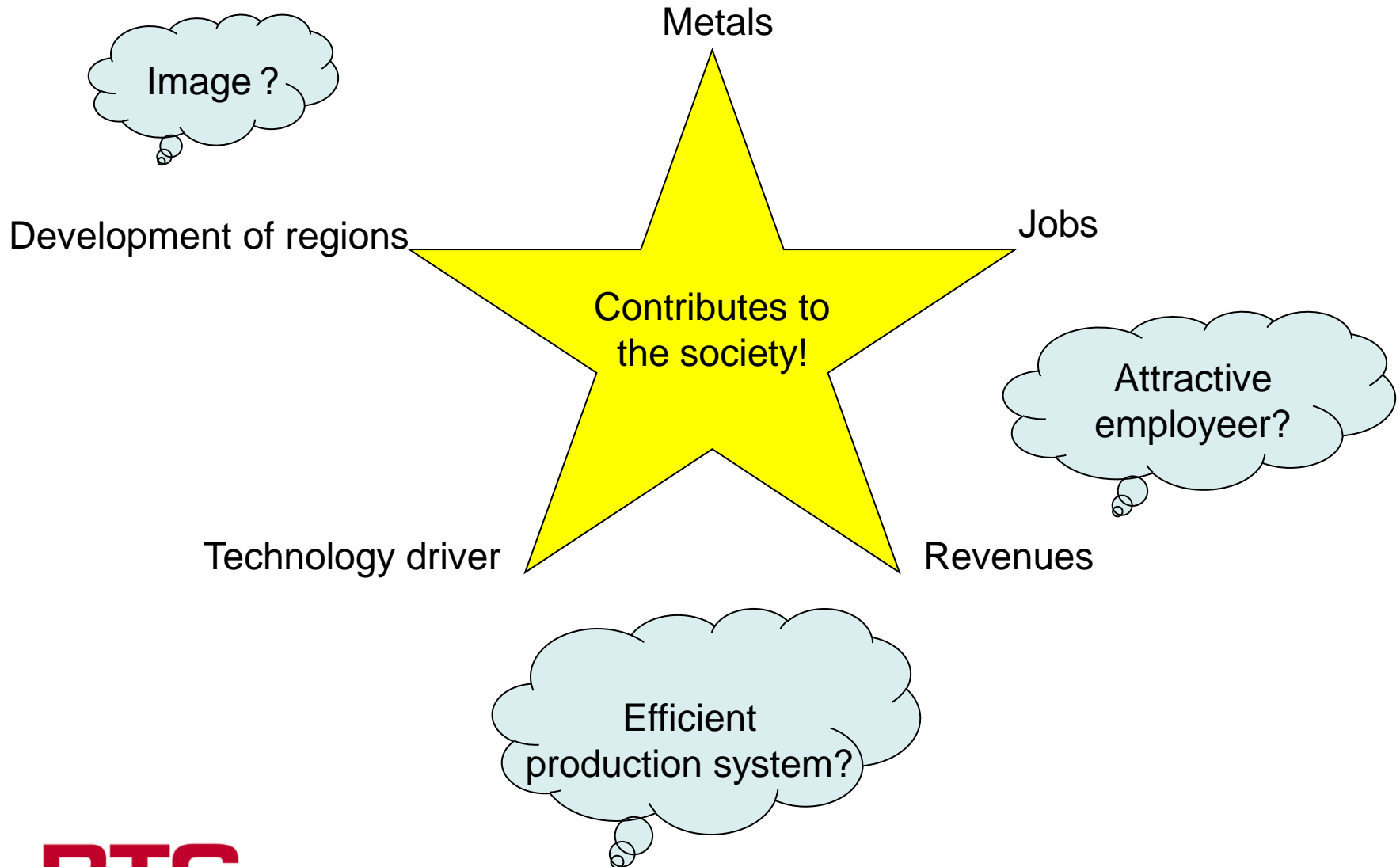
Current status

Conceptual study - Mine of the Future

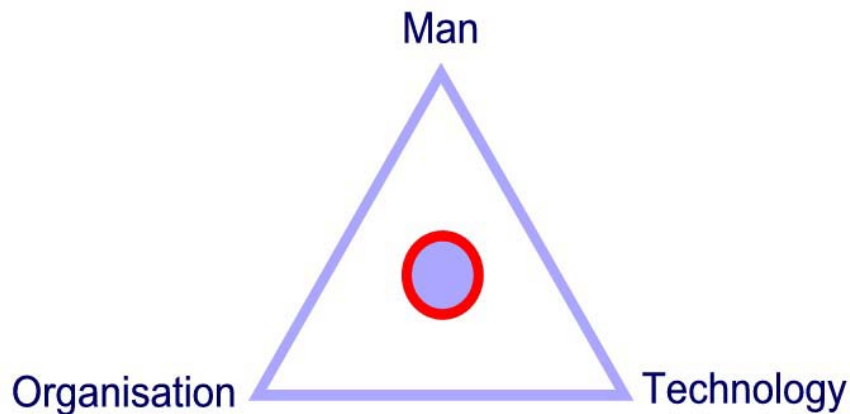
March 2009 – Dec 2010



Current status of the mining industry

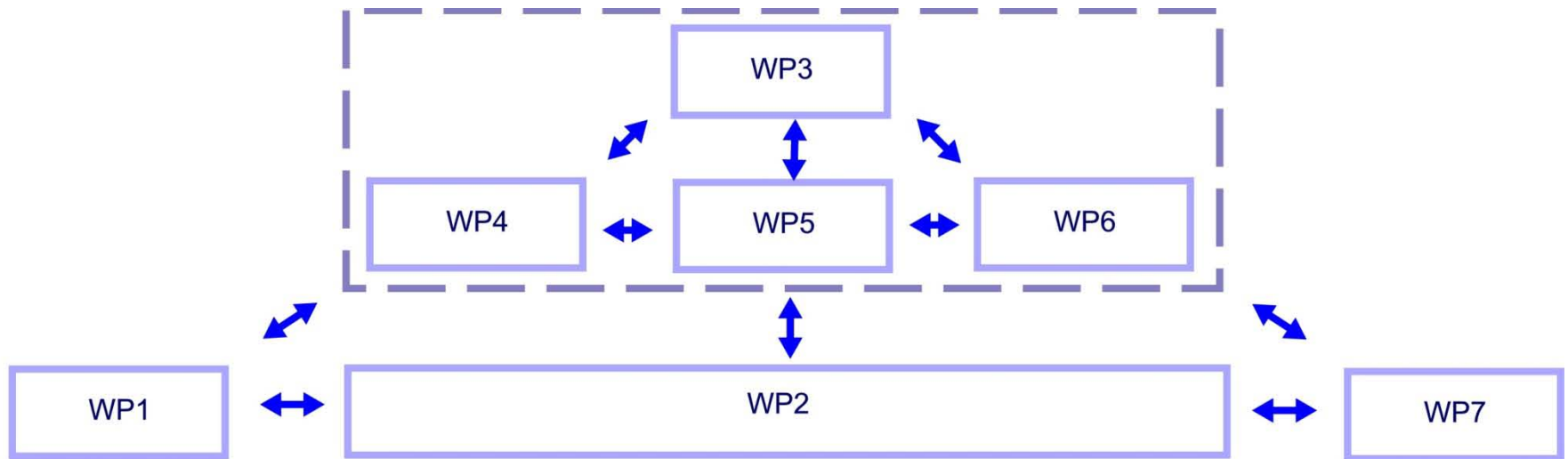


Point of departure



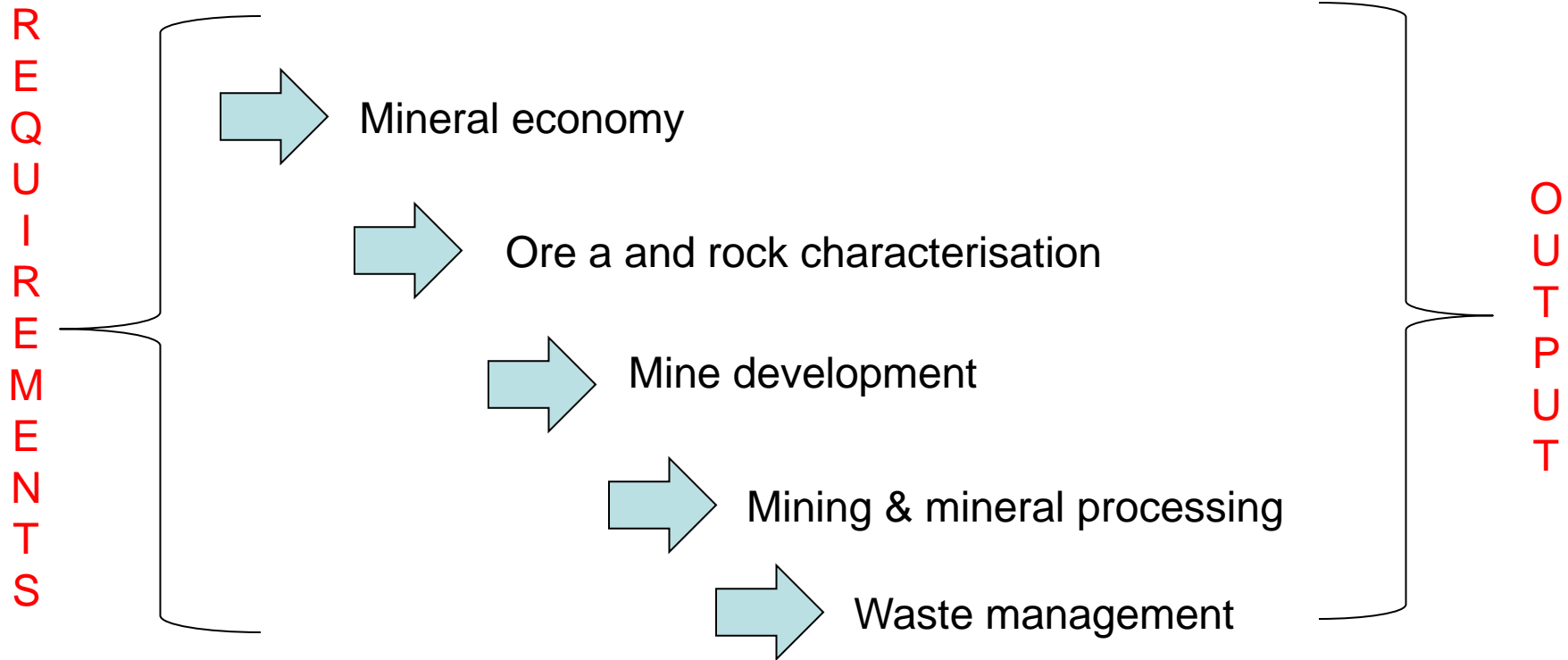
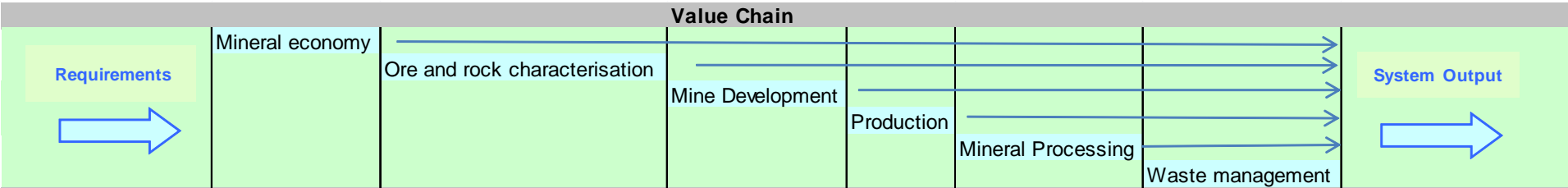
- Focussed on the overall production system - from the ore and its characterisation - to the finished raw material (to smelter/pellets plant)
- Deep mine 1,500 – 2,000 m
- Two types of mineralisations - mass mining type and vein type;

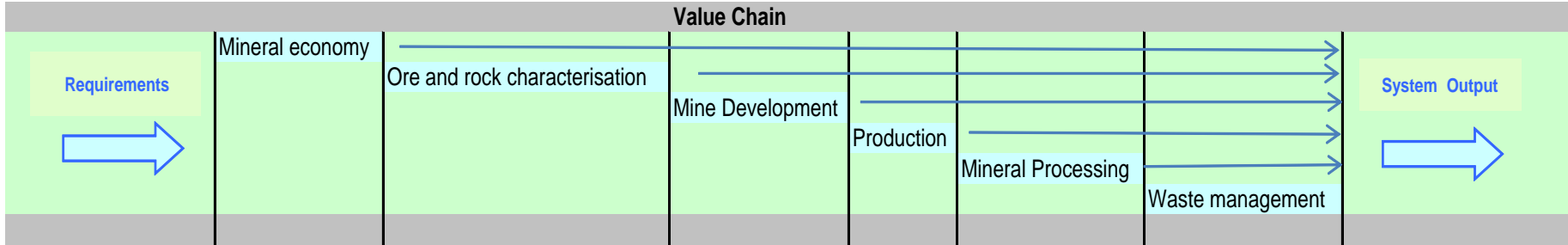
Work Packages



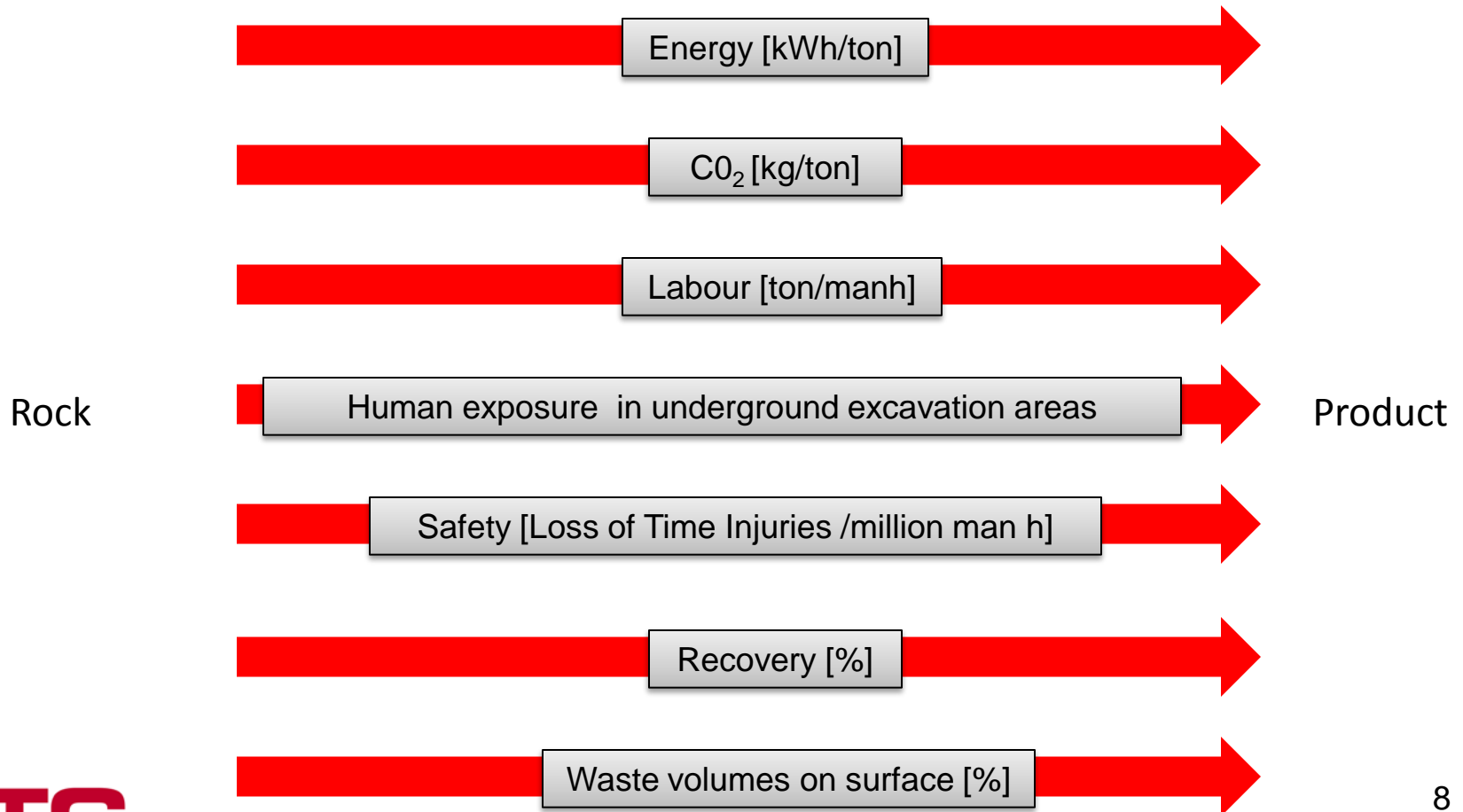
- WP3: The **Attractive Workplace**, Prof. Jan Johansson, LTU
- WP4: **Lean Mining**, Sunniva Haugen, Boliden
- WP5: **New Production Processes and technologies**, Torbjörn Naarttijärvi, LKAB & Prof. Eric Forssberg, LTU
- WP6: **Green mining and mineral processing – reduced environmental footprint**, Prof. Björn Öhlander, LTU
- WP1: **Setting the Scene**; WP2: **Conceptualise the Mine of the Future**;
WP7: **Integration of results, the way forward and final deliverable**, Göran Bäckblom

System view of the production system

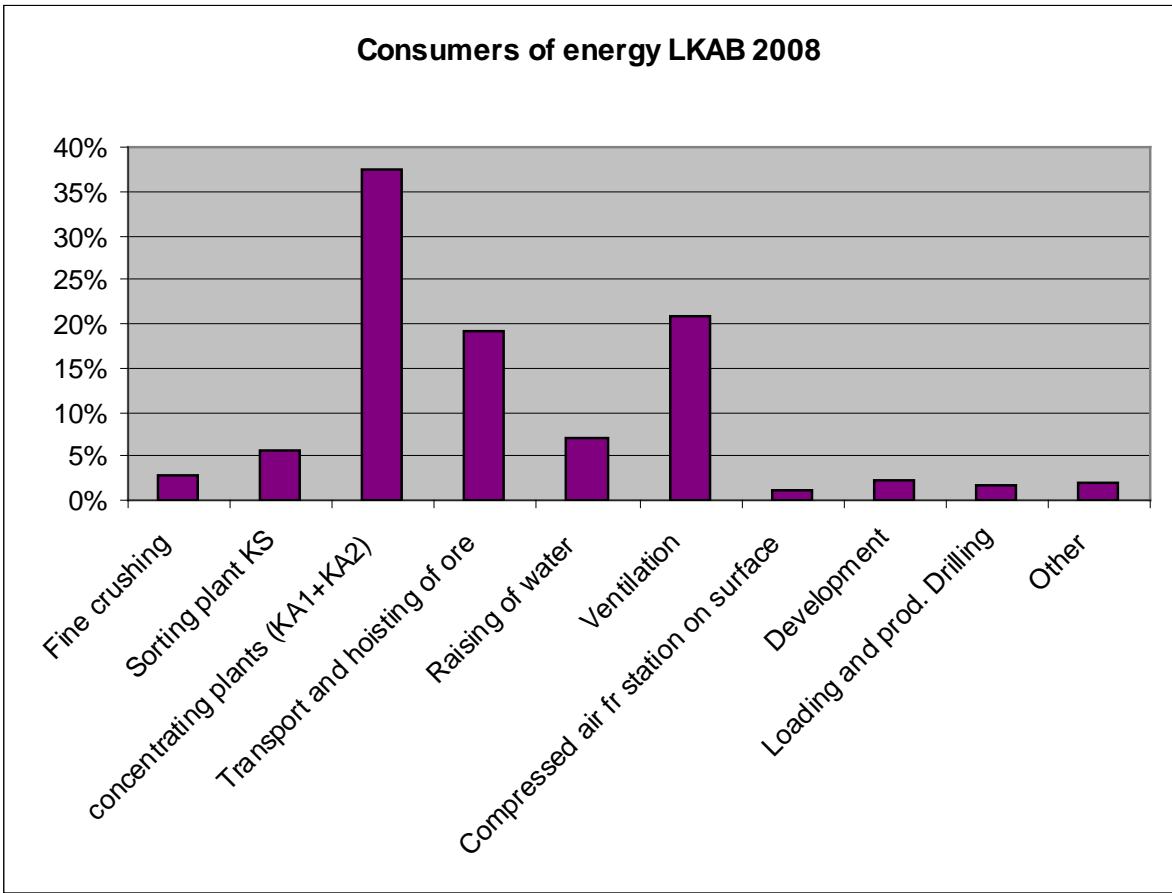
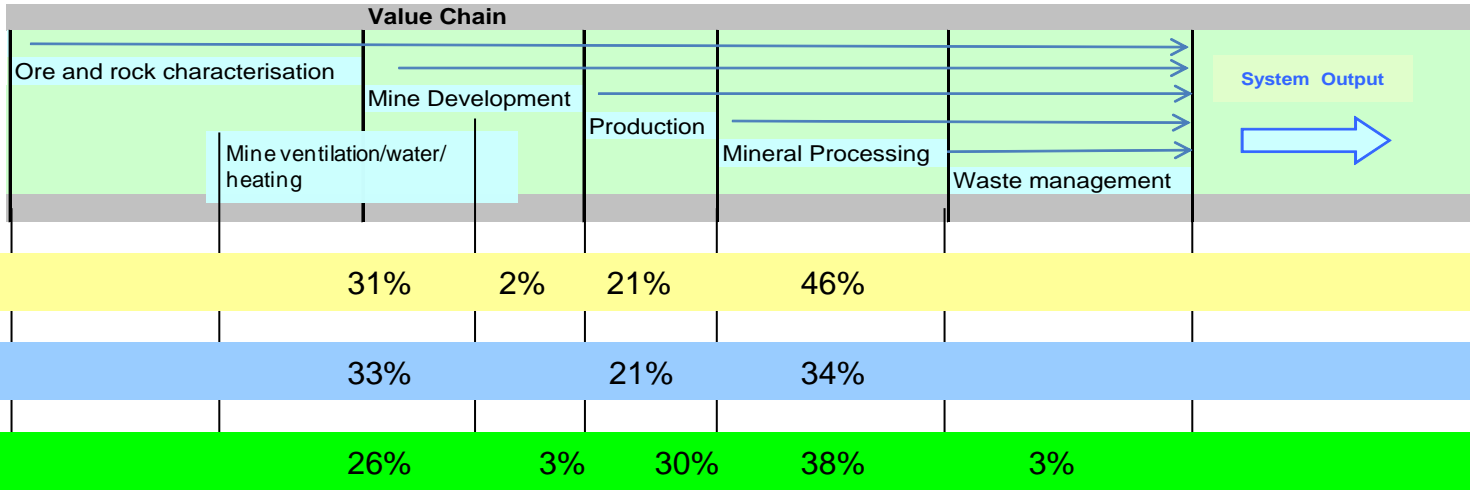




Selection of system indicators



Baseline Energy



Commitments (draft)

In situ production
of base metals

Zero waste

Fully automated mining operation
without human interference

Beyond Vision 2030

Vision 2030

> 30 by 2030

No human exposure at production faces

No harmful emissions

No accidents

Employees satisfaction

> 30% reduction of ore losses

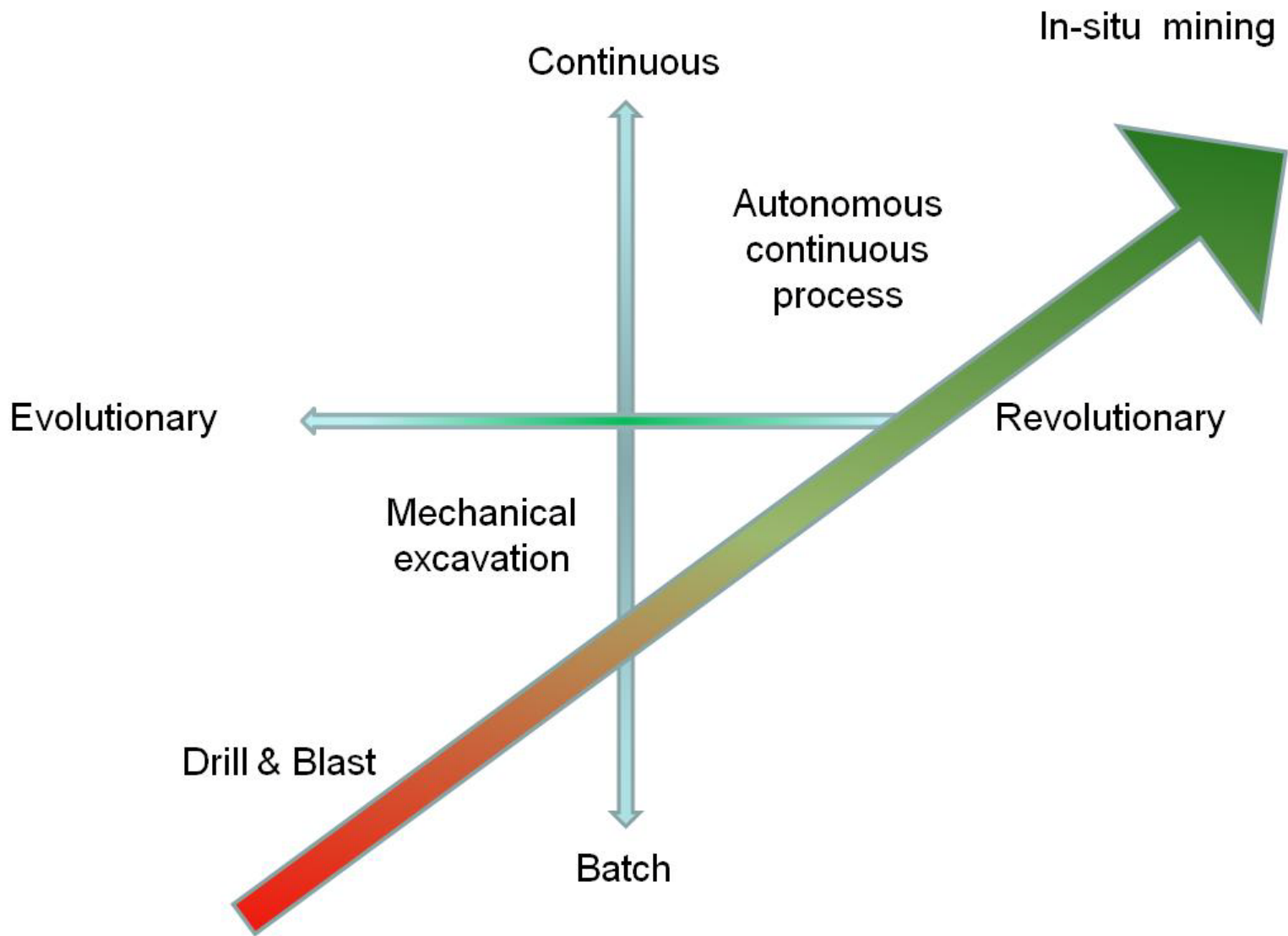
> 30% energy reduction

> 30% CO₂ reduction

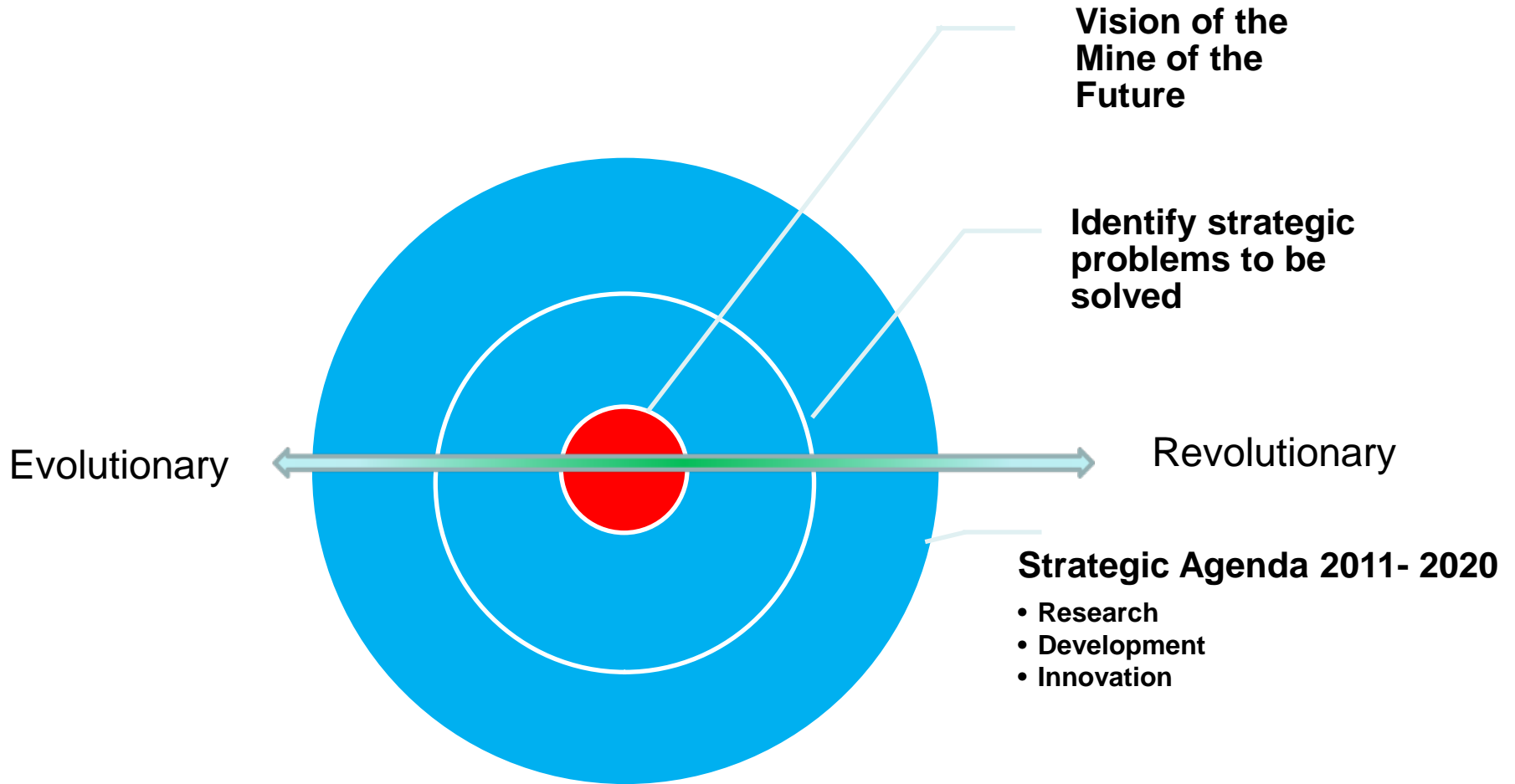
> 30% less manh/ton

> 30% less deposited waste

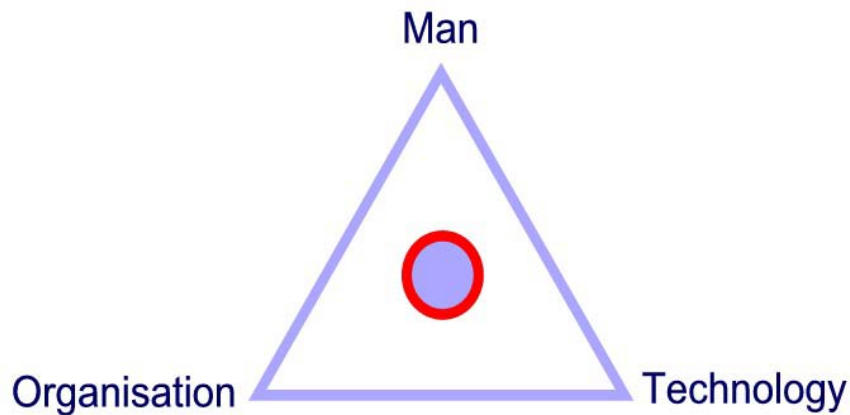
The Base: Competence, technology, conditions for business



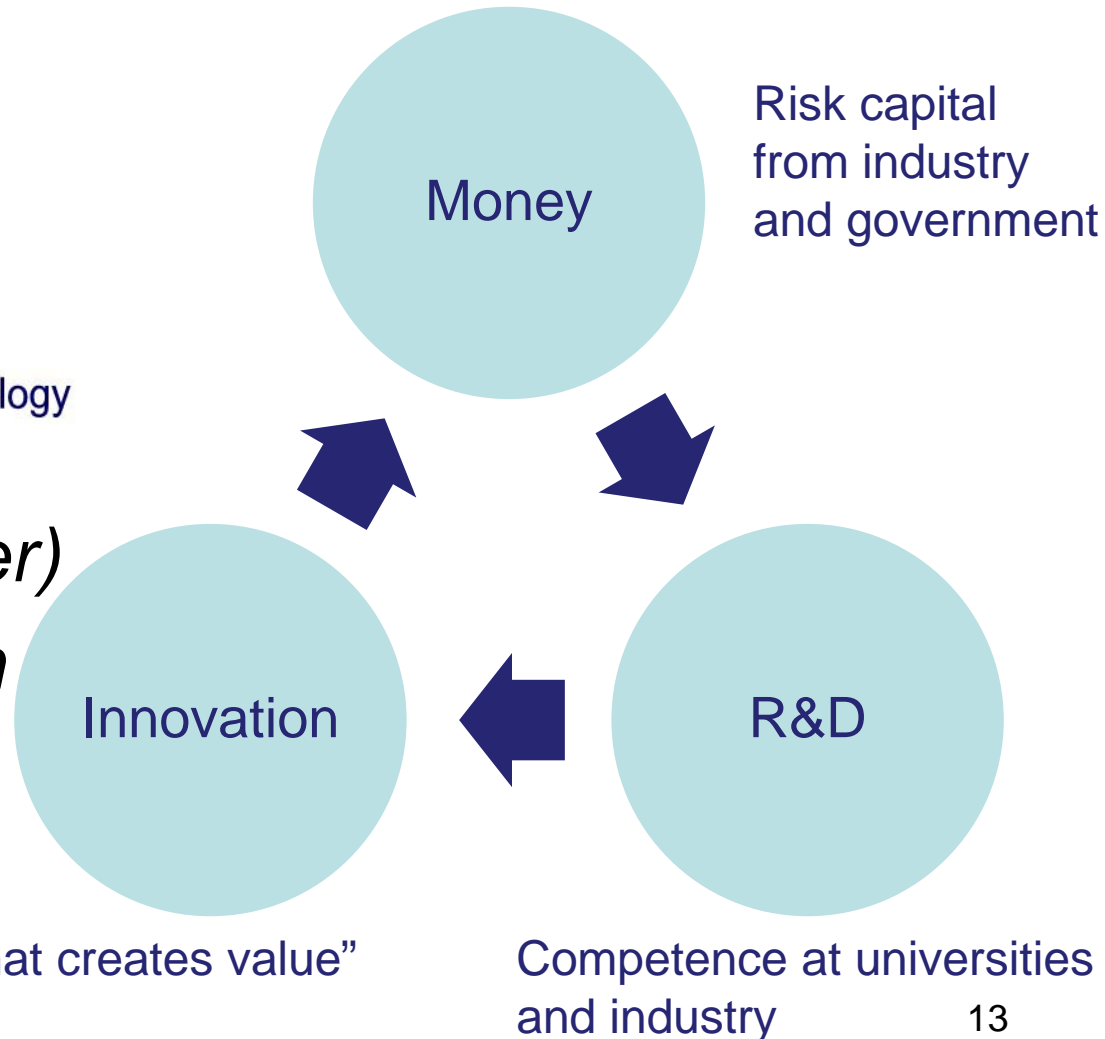
Mine of the Future Project Deliverables



Mining is business!



- *Technological (driver)*
- *Business innovation*
- *Organisational*



Way forward...

- *Safe mining*
- *Lean mining*
- *Green mining*
- *An innovative organisation that attracts talented young men and women to meet the grand challenges and opportunities of future mineral supply.*

Future status of the mining industry



Image!

Metals

Jobs

Contributes to
the society!

Development of regions

Technology driver

Revenues



Attractive
employer!



Efficient production system!