TRACEABILITY –

For sustainable metals and minerals

Frida Höjvall

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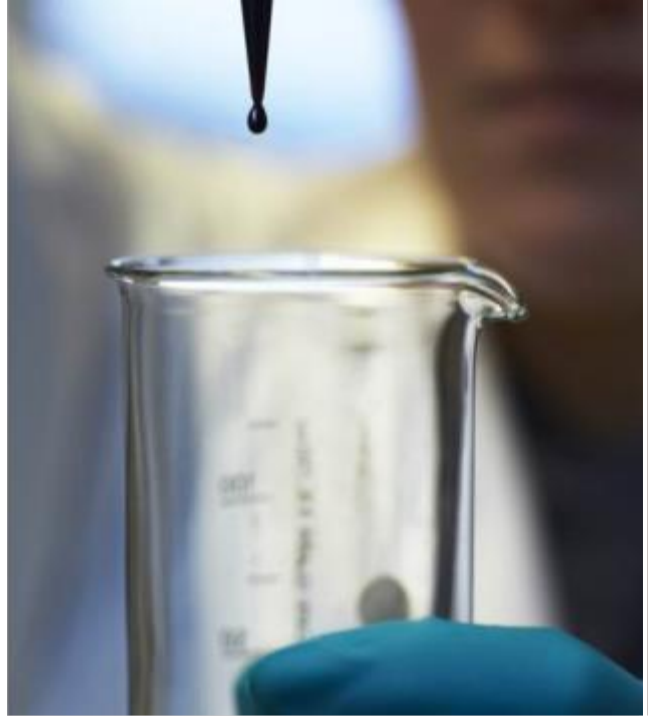
RISE Research Institutes of Sweden

Certifiering

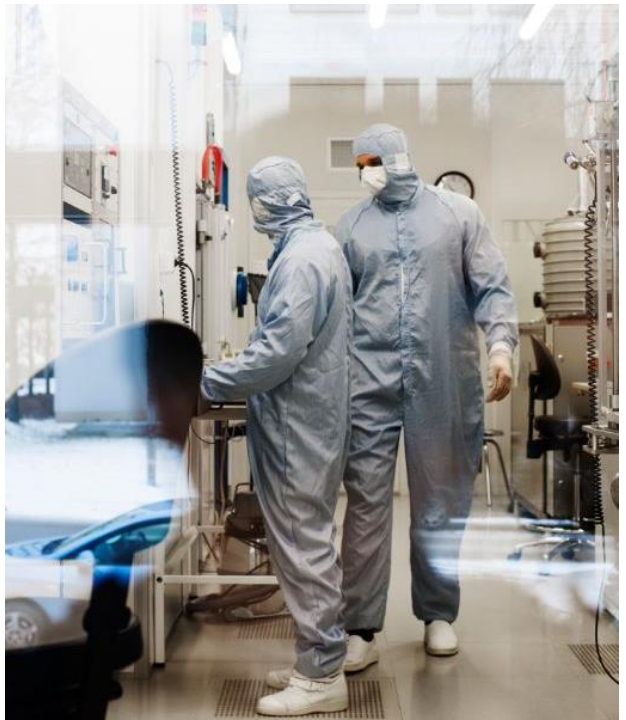


Frida Höjvall

- Project manager at RISE Certification
- Build bridges and create ***trust***
- ***Sustainability***
- Innovation management consultant, Field officer at Botswana Innovation Hub
- Academic background in *Innovation management* and *Enterprise risk management*
- ***Tornedalen***

RISE in brief

- Present across the whole of Sweden. And beyond.
- 2,300 employees, 30 % with a PhD.
- Turnover approx. SEK 2.7 billion (2017).
- A large proportion of customers are SME clients, accounting for approx. 30 % industry turnover.
- Runs 100s of test and demonstration facilities, open for industry, SMEs, universities and institutes (RISE is owner and partner in 60 % of all Sweden's T&D facilities).



Project organisation

Project owner

- Svemin

Operative working group

- RISE Certification
- RISE Innovation Blockchain centre
- Luleå University of Technology
- Boliden

Steering committee

- Svemin
- SIP STRIM
- LKAB
- Boliden
- Tillväxtanalys

Scope – Traceability in the mining industry

- The global demand of metals is high as metals are fundamental for our society.
- Prices of many metals are determined by the world market, where sustainable companies are not favoured and costumers unable to choose sustainable alternatives.
- The request of traceability is growing, not only the mining industry but it is a general concerns for most industries.
- There are indications of WTP for sustainably produced metals.
- UN Global Compact

Goals

Long term goal

- **A system promoting sustainable actors, which in turn promotes the development of a sustainable industry.**

Project goal

- **Knowledge and insights to make informed decisions about the next step,** to realize system promoting sustainable actors, which in turn promotes the development of a sustainable industry

The project

Will

- Have copper as a user case
- Develop concepts of chain of custody models
- Investigate possible applications of blockchain
- Third-party audit to secure that correct data is recorded in the chain of custody
- Communicate to the Swedish industry

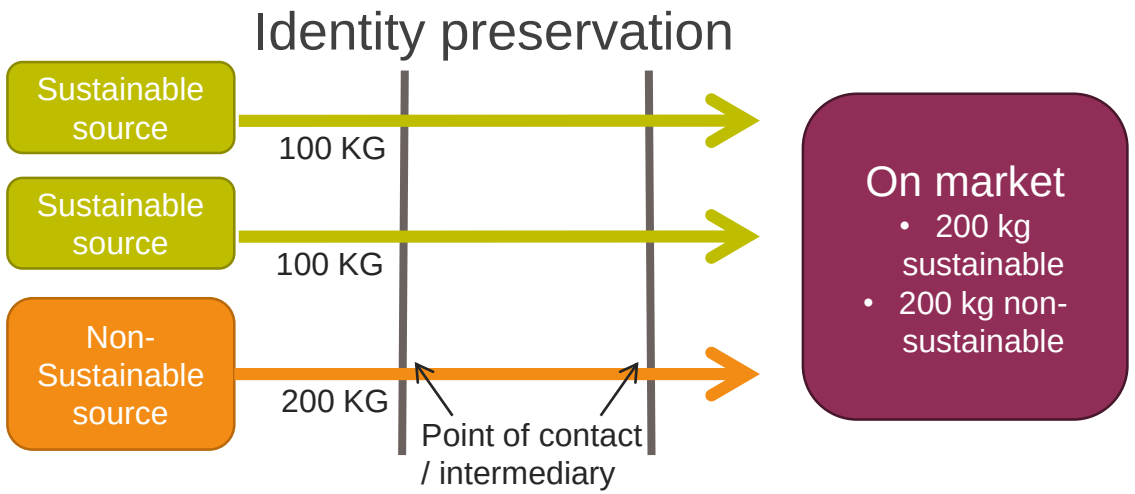
Will not

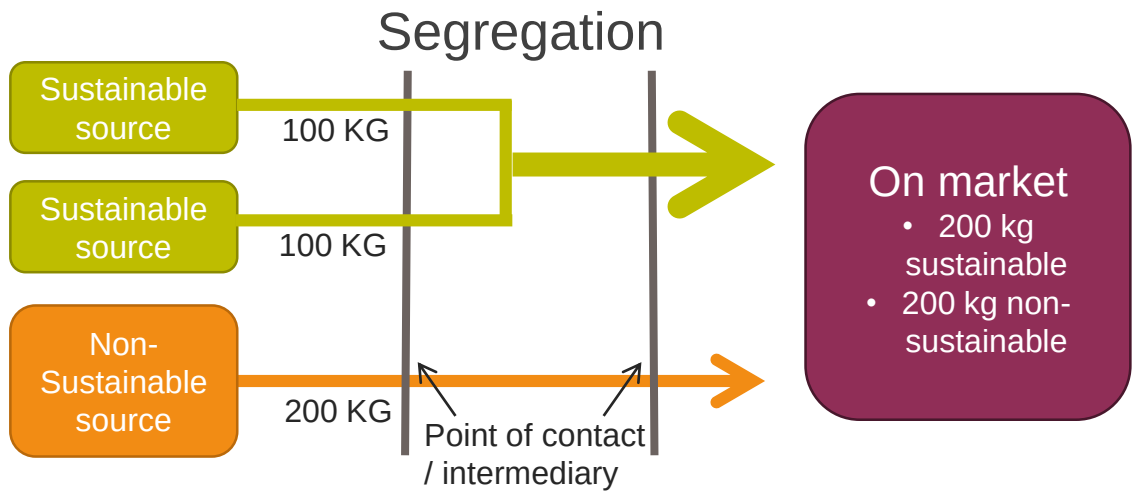
- Develop criteria for sustainable metal production

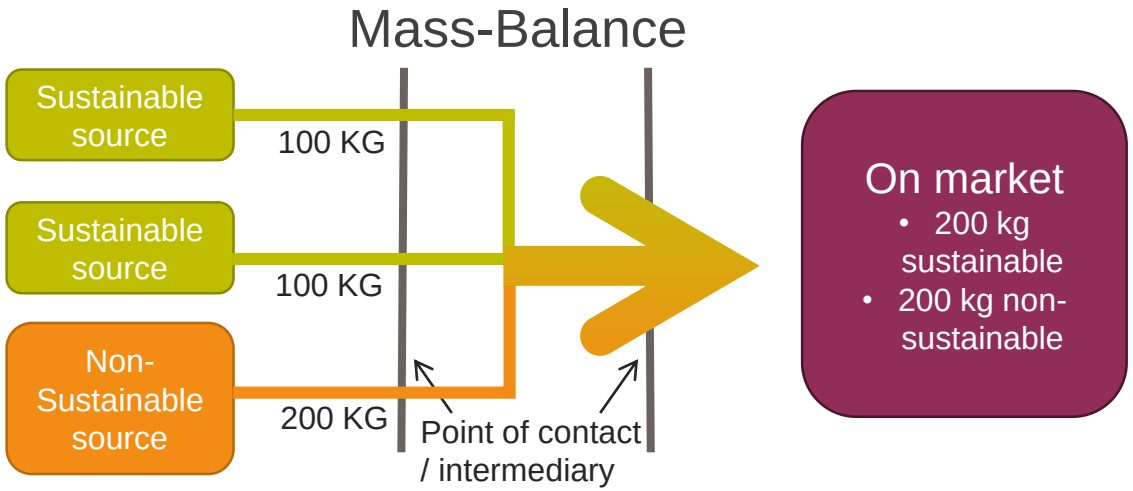
  Why not?

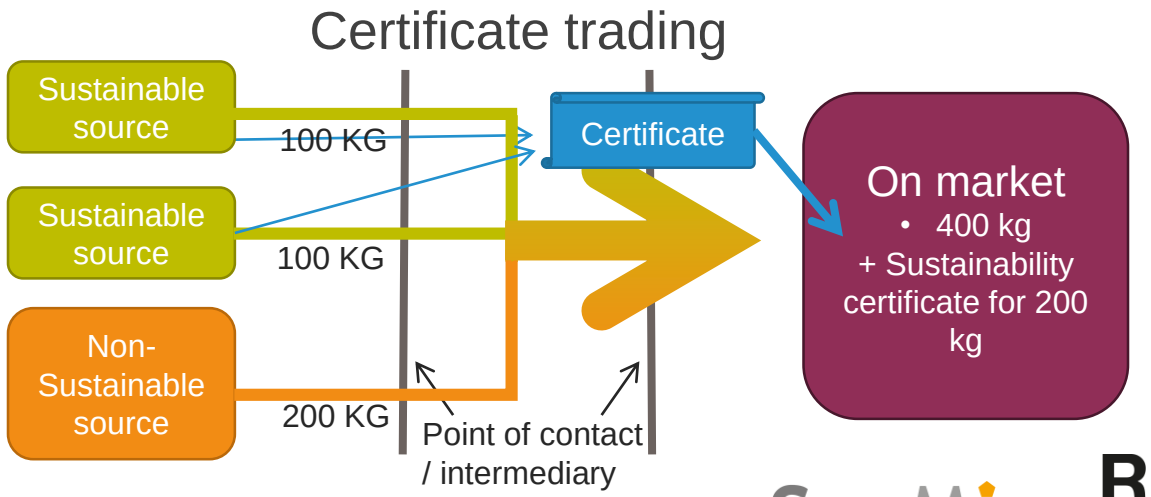
  - To get international acceptance (let the market decide)
  - Other initiatives out there , e.g. TSM, CERA, UN
  - It is hard!

Chain of Custody models

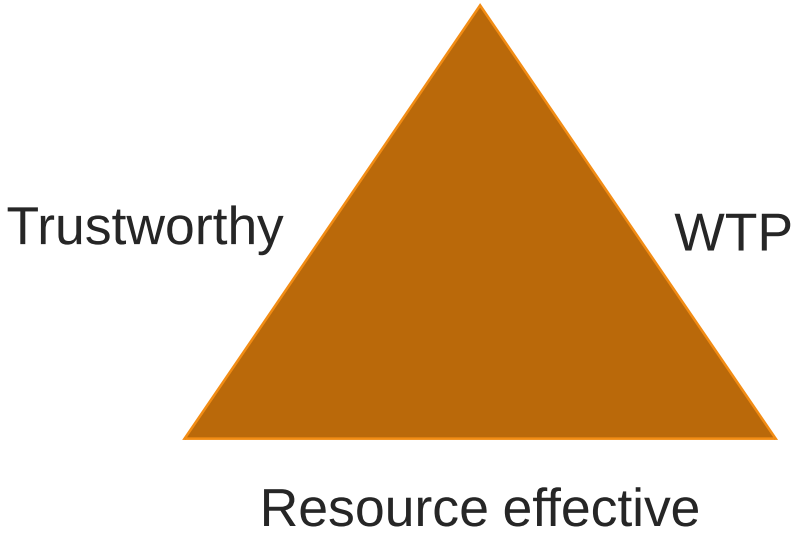








The right balance?



Blockchain

Can

- Create transparency
- Be an effective infrastructure
- Secure digital signatures
- Secure that data is not duplicated

Can not

- Verify that the data added to the blockchain is correct

Conclusion

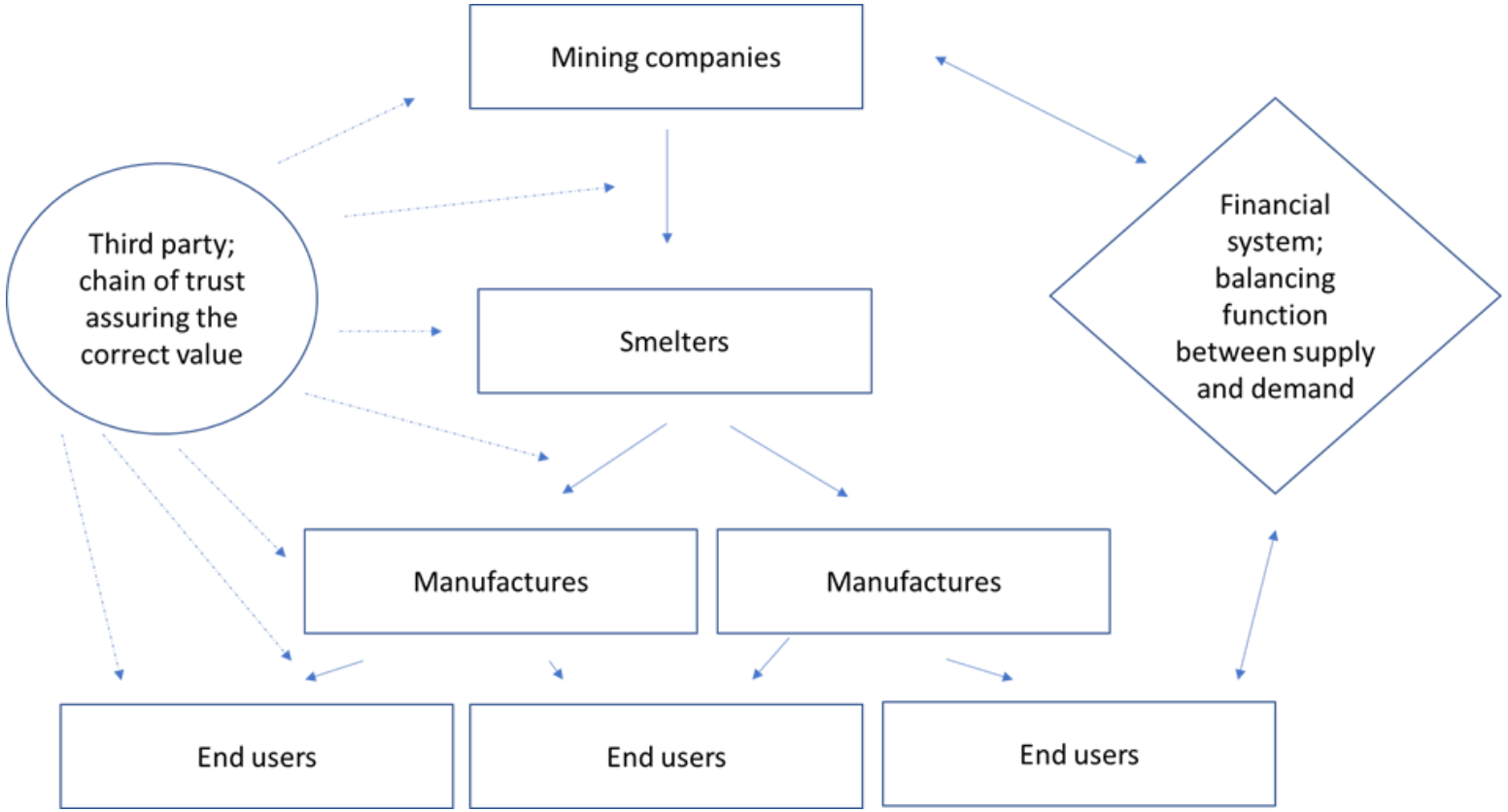
Blockchain could be one important part of the solution, but is depended on third-part audit.

State of the art description

Key findings

- Concept confusion - Sustainability certification schemes, standards and initiatives
- FSC uses both the CoC models segregation and mass-balance
- RSPO, Roundtable on Sustainable Palm Oil,
- Smart steel, financed by SIP PiiA, “ID”-solution
- Hydro 4.0 and hydro 75R
- WTP – Willingness to pay
- Blockchain for food safety in the supply chain
- Blockchain applications for traceability is at an early stage

Stakeholder and market analysis



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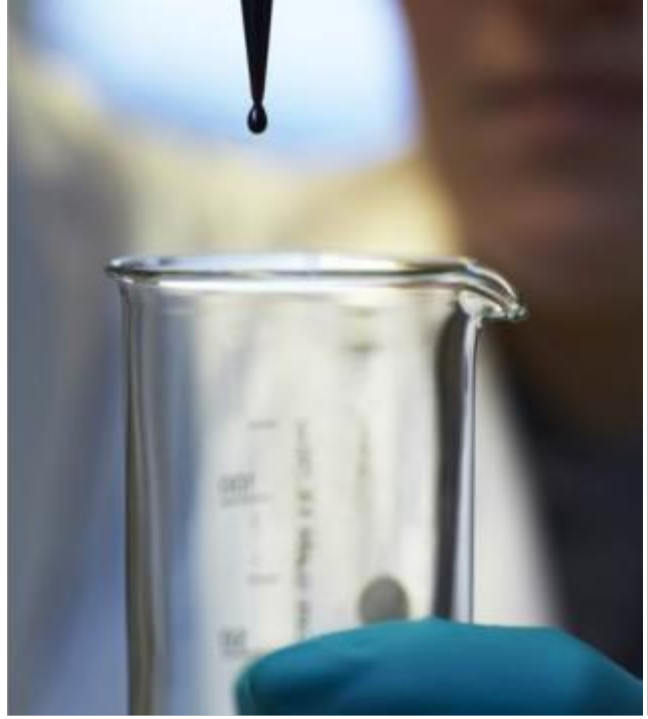

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