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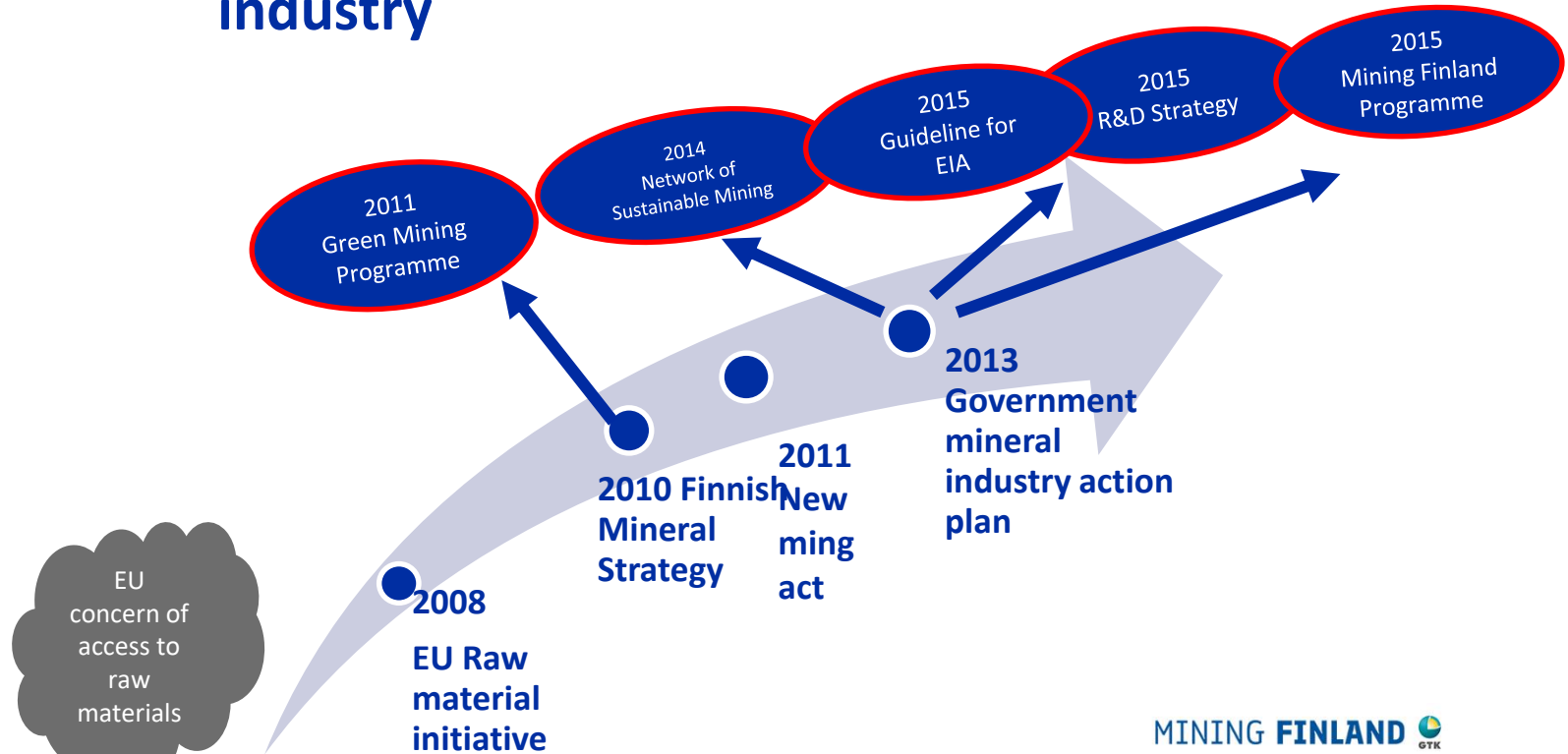
Developing Finnish mining cluster

Riikka Aaltonen
Harry Sandström
18.9.2018



Finland is strongly committed to systematic development of mining industry

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Finnish Mineral Strategy objectives

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VISION 2050

Finland is a global leader in the sustainable utilisation of mineral resources and the minerals sector is one of the key foundations of the Finnish national economy.

Global competitiveness

Secure supply of raw materials

Dynamic regional development

Life cycle thinking



Minerals strategy objectives

12 proposed and jointly agreed measures to achieve the objectives



Green Mining programme and concept

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Over 100 projects

Input over 120 m€

Over 150 partners

Promotes materials and energy efficiency



Less energy used in process
Renewable energy utilized
Less side rock and wastes
Less water used and discharged

Ensures availability of mineral resources for future needs



New ore reserves
Advanced exploration techniques
Mineral processing for low grades

Minimizes adverse environmental and social impacts



Reduce of environmental footprint and emissions
Maximize positive social impacts
Considering of stakeholder interests

Improves work and organisational practices



Culture of continuous improvement of safety, quality and environmental performance of the companies

Ensures sustainable land use following mine closure

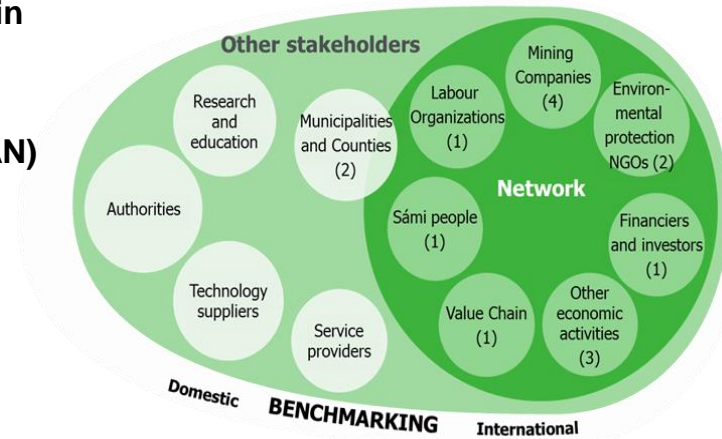


Mine closure plan is started simultaneously with mine planning and is updated regularly during the whole life time of the mine



Network for Sustainable Mining

- **Neutral platform for interaction between stakeholders and the industry**
- **CSR report on mining activities in Finland**
- **Toolbox for local actions**
- **Towards Sustainable Mining (CAN) fitted to Finnish legislation – protocols for self evaluation, audits (Kittilä 2018)**
 - Stakeholder cooperation
 - Biodiversity
 - Water management
 - Energy efficiency and emissions
 - Occupational safety and health
 - Crisis management
 - Mine closure



www.kaivosvastuu.fi/in-english/



Guide for Environmental Impact Assessment Procedure (EIA)

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- EIA must be conducted for all mining projects with significant environmental impacts
- Procedure is defined by law
- Includes public participation
- Impacts on nature, humans and the built environment
- Large steering group consisting of industries, NGO's, administration and other stake holders



The EIA procedure should take place after exploration permit but before mining permit.

The content and length of EIA reports should be more uniform than at present.

Guide in English (full text):

https://www.tem.fi/files/42872/New_guide_for_environmental_impact_assessment_procedure_for_mining_projects.pdf



FINLAND HOSTS LEADING EDUCATION, RESEARCH AND DEVELOPMENT FACILITIES

Due to its strong mining cluster, good testing and education facilities, supported by engineering and technology orientated mind set of experts, **Finland is perfect hub for mine technology development.**



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Nordic Mining School:
education cooperation

Oulu Mining School:
Integrated geology and
mining education

University of Turku, Abo
Academi and University of
Helsinki: Geology

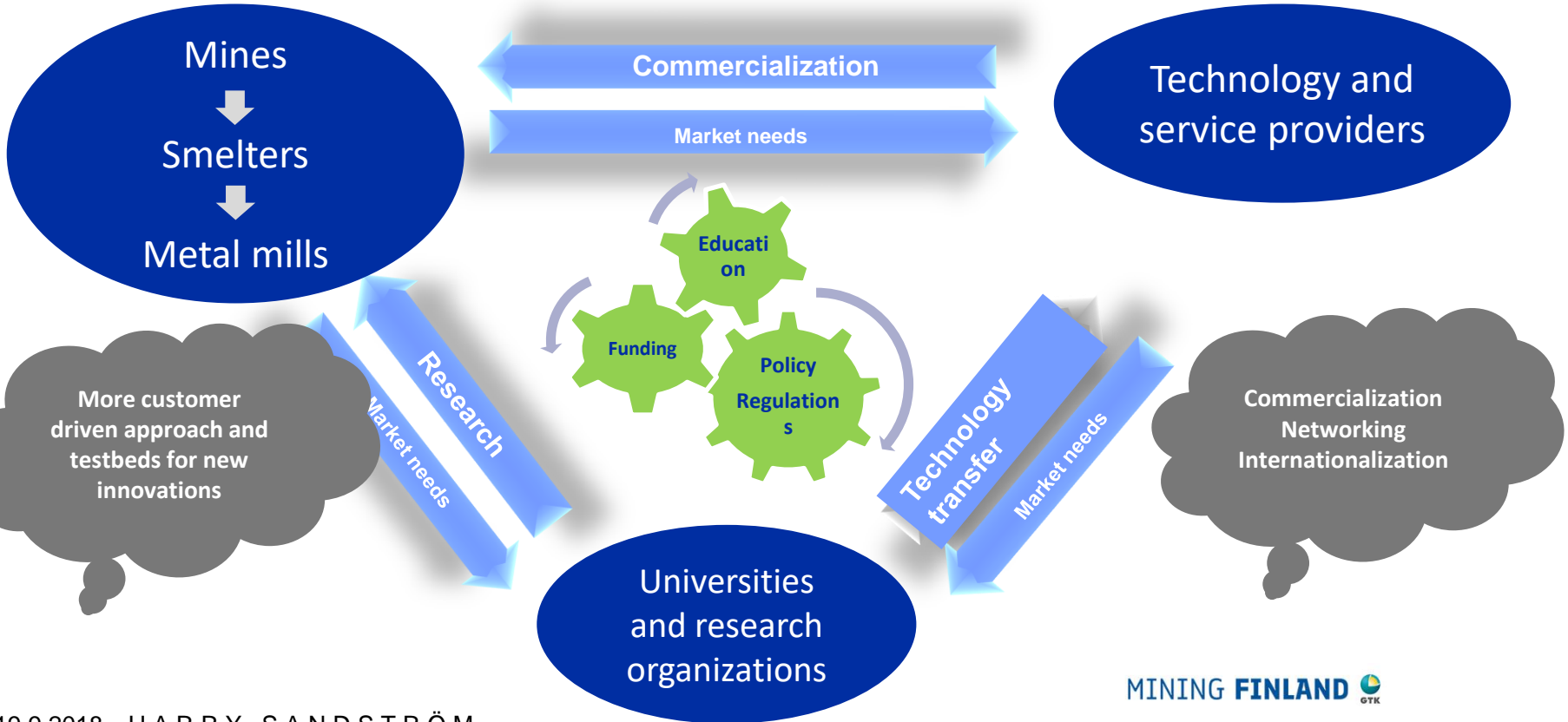
University of
Tampere: biotechnology

Aalto University: rock
construction

University of
Lappeenranta: filtering
technology

FINLAND HAS TODAY STRONG MINING ECOSYSTEM

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MINING FINLAND is one of Team Finland growth programmes

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Innovative bioproducts

Agrotechnology from Finland



Beautiful Beijing

CONNECTIVITY
FROM FINLAND



Education Export Finland

Team Finland Health



DIGITAL
HOSPITALS FINLAND



FinlandCare

Maritime and Offshore from Finland

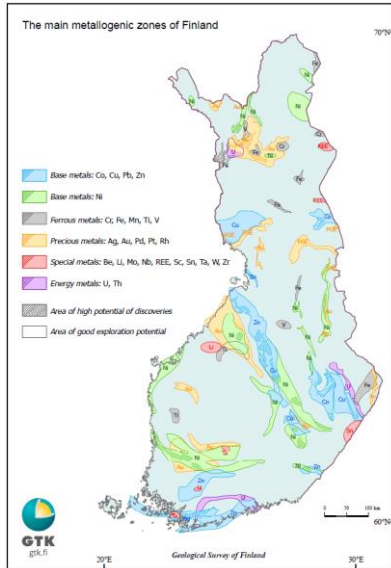
Mobility as a Service - Intelligent Vehicle and Traffic Growth Program (MaaS)

Developing Markets Growth Program



MINING FINLAND OBJECTIVES

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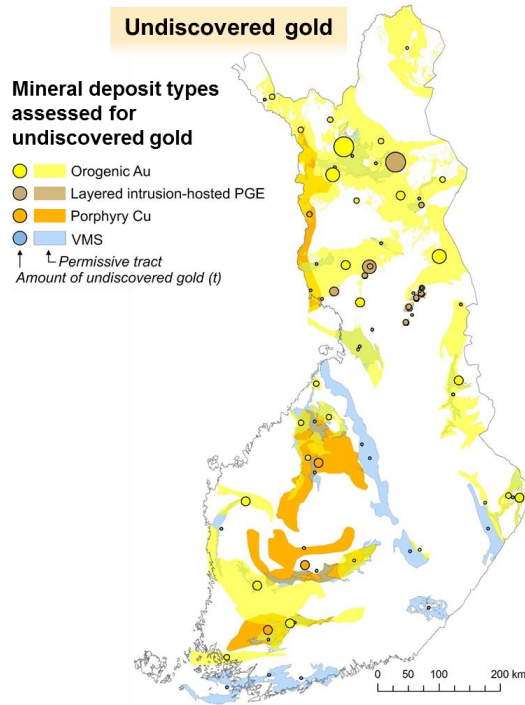
- promotes mining and exploration investments to Finland
- promotes export and international networking of Finnish mining technology and service companies, focus in SMEs





PROMOTION OF MINING AND EXPLORATION INVESTMENTS TO FINLAND

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Main activities

- International networking
- Trade shows and congresses
- Investor seminars
- Visibility in media
 - www.miningfinland.com
 - Twitter: @MiningFinland
 - LinkedIn: Mining Finland
- Media and investor visits to Finland

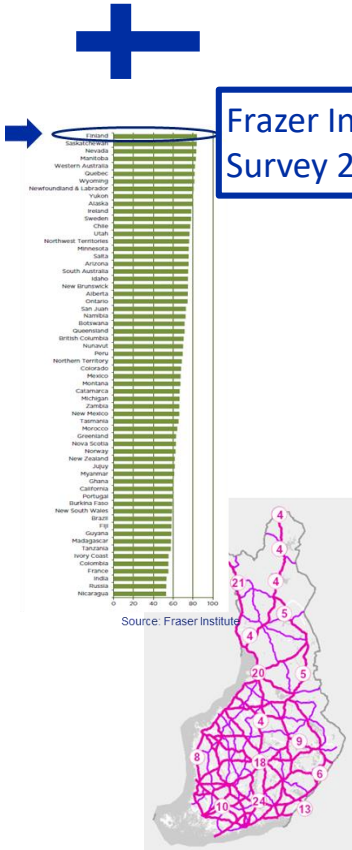
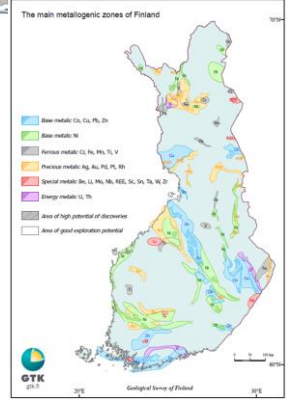
Focus countries

Canada
South Africa
Australia
China

WHY INVEST IN MINING IN FINLAND?

Frazer Institute
Survey 2017

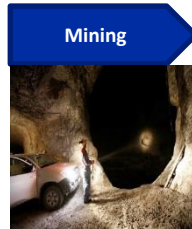
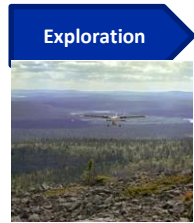
- ❖ The right geology and still much unexplored
- ❖ Excellent and readily available data sets
- ❖ Long mining traditions and strong mining cluster
- ❖ Clear national strategy and regulation base
- ❖ Excellent infrastructure





PROMOTION OF EXPORT AND INTERNATIONAL NETWORKING OF FINNISH MINING TECHNOLOGY AND SERVICE COMPANIES

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Main activities

- Market studies
- **International networking**
- **Domestic networking and clustering**
- Trade shows, road shows and seminars
- Visibility in media
 - www.miningfinland.com
 - Twitter: @MiningFinland
 - LinkedIn: Mining Finland
- Buyer visits to Finland

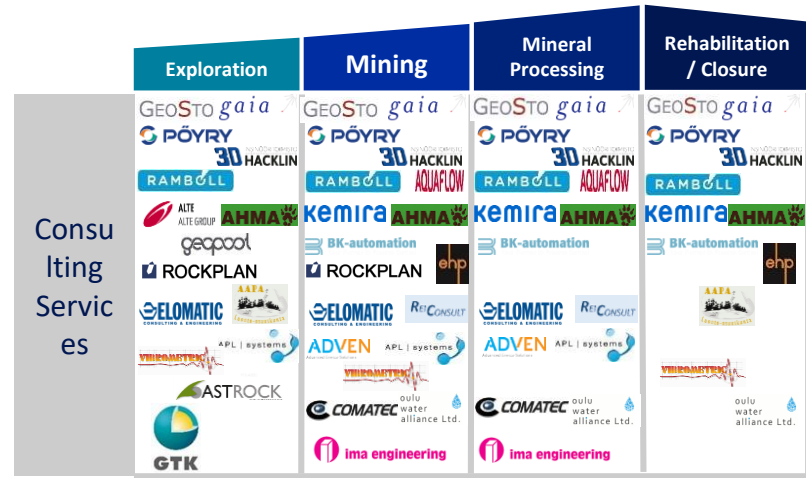
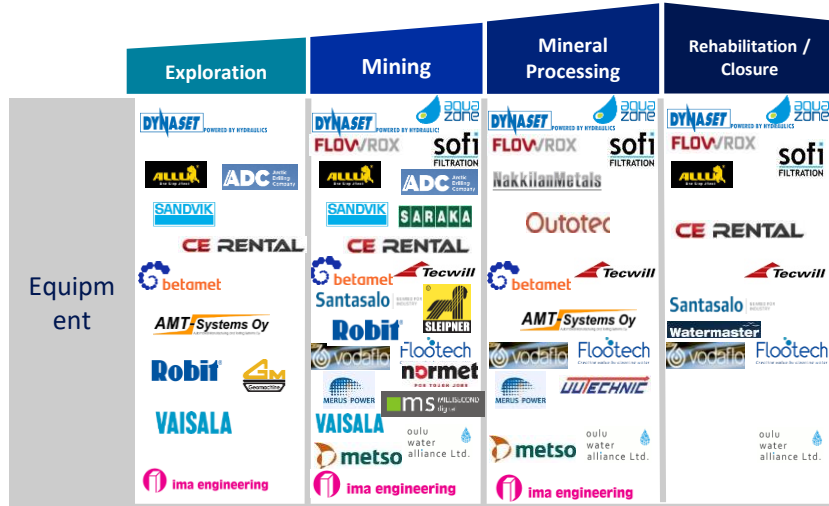
Focus countries

Canada
Southern Africa
Australia
Chile
Peru
Iran



FINLAND HAS OVER 200 TECHNOLOGY AND SERVICE PROVIDERS ACROSS THE VALUE CHAIN

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MINING FINLAND ACTIVITIES SINCE AUGUST 2016

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- 20 Trade shows including round table discussions and mini-seminars in focus countries
- 15 Seminars and workshops with stakeholders
- Nordic cooperation:
 - Nordic mining day in PDAC jointly with SGU, NGU, Innovation Norway and Business Sweden
 - Joint booth in Perumin in Arequipa with Business Sweden
 - Nordic Mining Investment Conference in Helsinki jointly with Nordic Publishing and Business Sweden