



Natural Resources
Canada

Ressources naturelles
Canada



CIM MES / Montreal

Transforming Risk into Opportunity

Janice Zinck

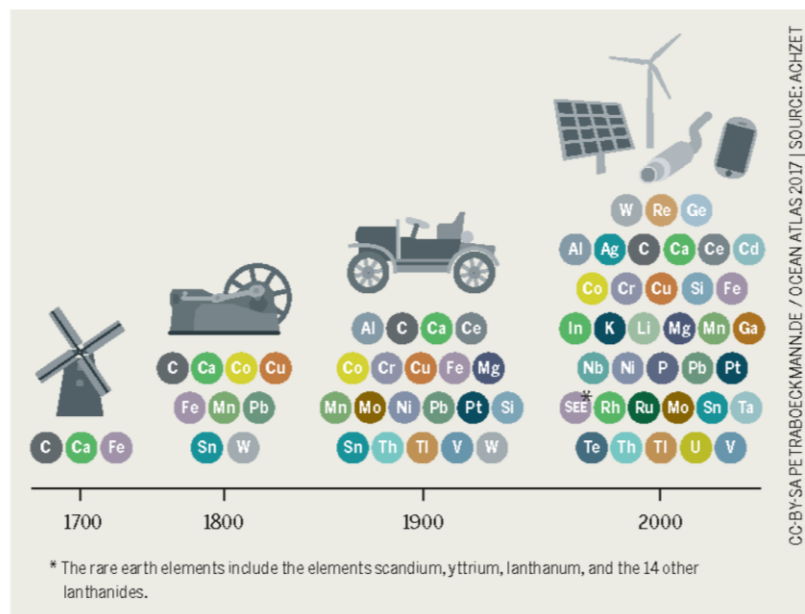


**Management & Economics
Society**



Canada 

300 Years—Technological Development and Metal Consumption



Creator: petraboeckmann.de.  This image is licensed under [Creative Commons License](https://creativecommons.org/licenses/by-sa/4.0/).

Growing Demand For Minerals and Metals

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



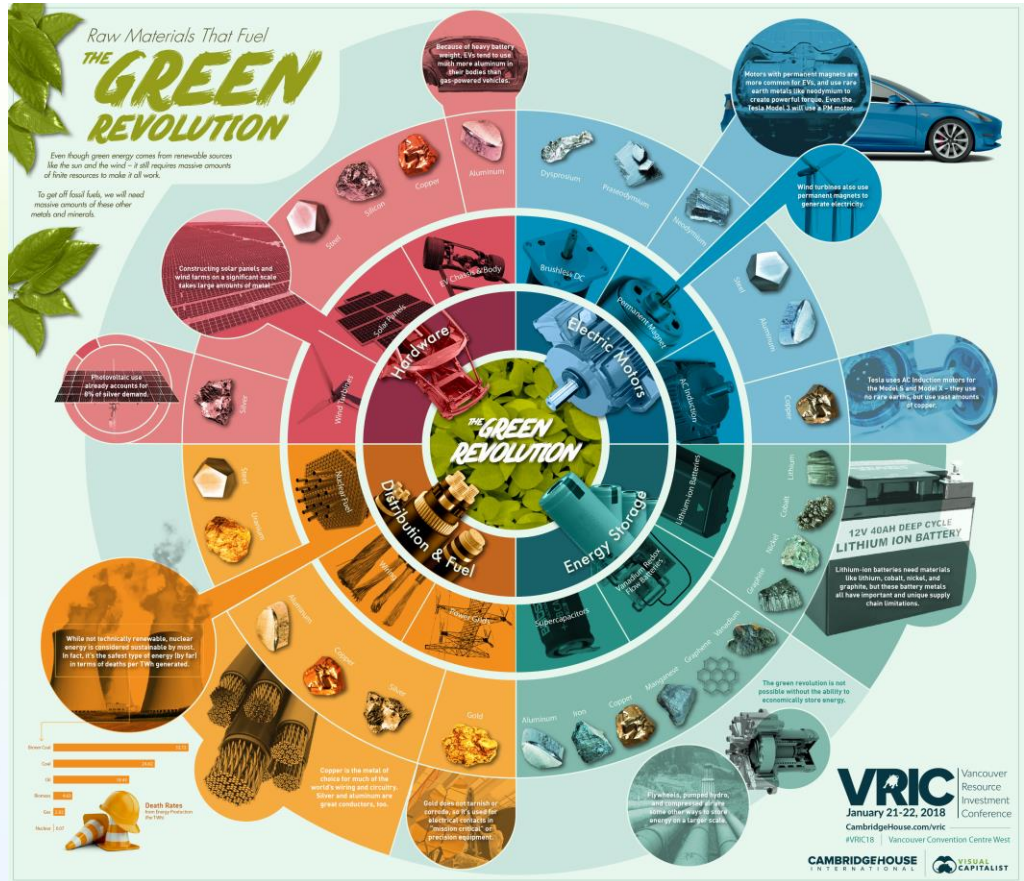
Natural Resources
Canada

Ressources naturelles
Canada



Canada 

Green Economy Fueled by Minerals and Metals



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources Canada

Ressources naturelles Canada



VRIC Vancouver Resource Investment Conference
 January 21-22, 2018
 CambridgeHouse.com/vric
 #VRIC18 Vancouver Convention Centre West

CAMBRIDGEHOUSE INTERNATIONAL VISUAL CAPITALIST

Mining sector risks



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada



Insights into Mining

Issue 14: Top 10 risks facing mining executives in 2018



[Home](#) [About Us](#) [Services](#) [Industries](#)

2018 Business Risks and Opportunities Within the Mining Industry

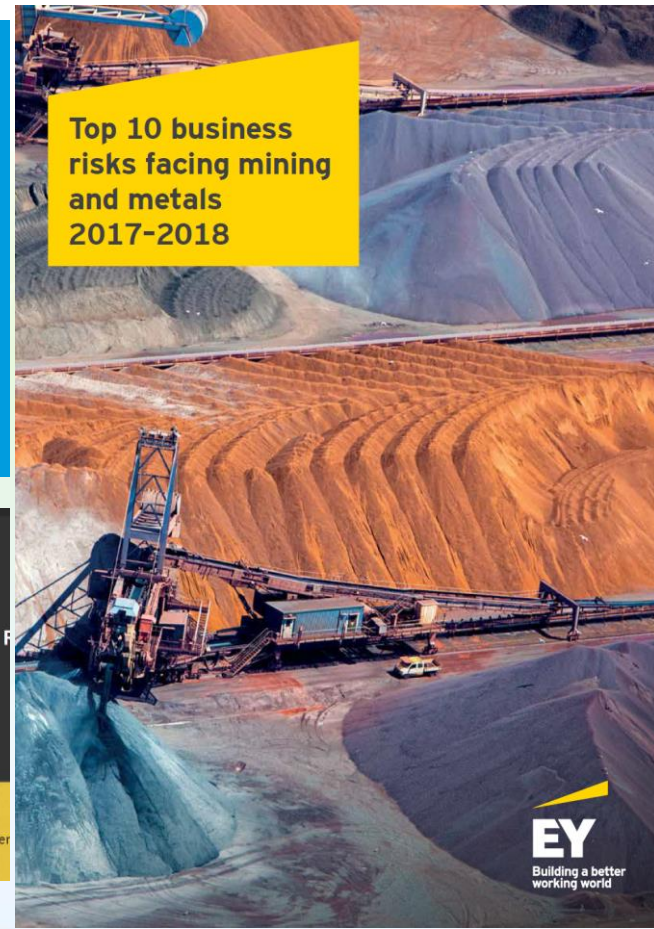
[Home](#) / [Energy](#)

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

Risks	KPMG	EY	Dean Dorton
	Commodity prices	Digital effectiveness	Technological modernization
	Permitting	Competitive shareholder returns	Shareholder returns
	Access to capital/liquidity	Cyber	Cybersecurity
	Community / Social license to operate	New world commodities	Cash optimization
	Controlling capex	Regulatory risk	Regulatory Changes
	Environmental	Cash optimisation	Social awareness
	Political	Social license to operate	Operational runaway
	Reserve access / replacement	Resource replacement	Changing fundamentals
	Opex	Access to and optimisation of energy	Production management
	Capital allocation	Managing joint ventures	Capital management

© I

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Risks	KPMG	EY	Dean Dorton
	Commodity prices	Digital effectiveness	Technological modernization
	Permitting	Competitive shareholder returns	Shareholder returns
	Access to capital/liquidity	Cyber	Cybersecurity
	Community / Social license to operate	New world commodities	Cash optimization
	Controlling capex	Regulatory risk	Regulatory changes
	Environmental	Cash optimization	Social awareness
	Political	Social license to operate	Operational runaway
	Reserve access / replacement	Resource replacement	Changing fundamentals
	Opex	Access to and optimisation of energy	Production management
	Capital allocation	Managing joint ventures	Capital management

©

©Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



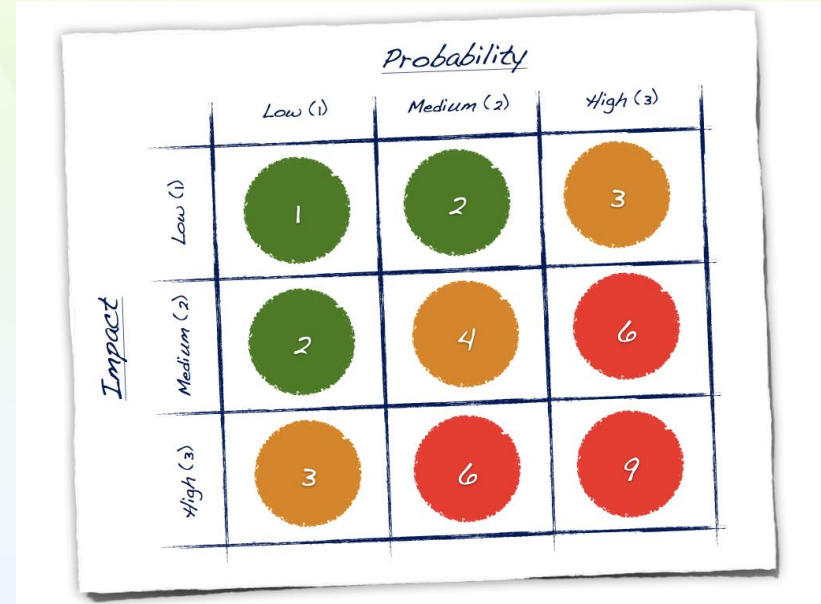
Natural Resources
Canada

Ressources naturelles
Canada

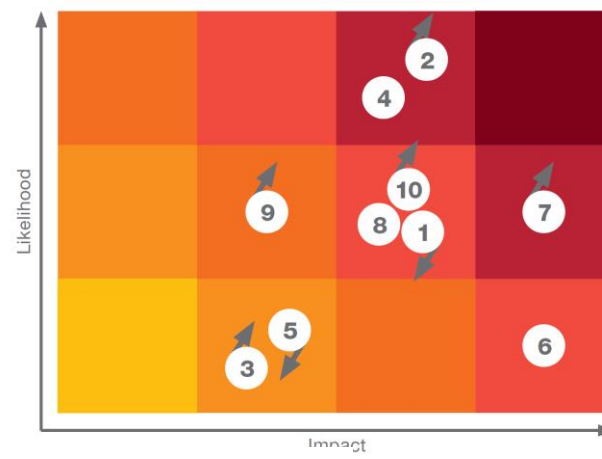


Priority Risks (2018)

- Regulatory risk
- Cash optimization
- Social license to operate



Top 10 business risks facing mining and metals in 2019-20



Key

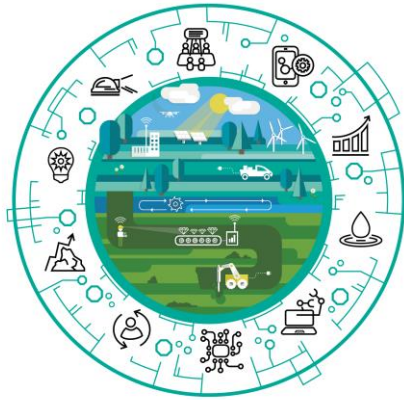
Risk Impact
 ⓘ Minor 🟡 Moderate 🔴 Major 🟠 Severe

- Significant risks include:**
1. Macro-economic fluctuations
 2. Geopolitical and regulatory
 3. Failure to acquire new resources, explore and grow
 4. Increased costs / pressure efficiency and effectiveness
 5. Liquidity and funding
 6. Natural disasters
 7. Technology and cyber
 8. Safety, health and environmental
 9. Market competition
 10. Public perception / licences to operate

Source: PwC analysis and Top 40 Annual reports

Deloitte.

The top 10 issues shaping mining in the year ahead



Risks	KPMG	EY (2019)	Dean Dorton	Deloitte	PWC
	Commodity prices	Licence to operate (↑)	Technological modernization	Digitization	Geopolitical and regulatory
	Permitting	Digital effectiveness (↓)	Shareholder returns	Barriers to innovation	Increased costs/efficiencies
	Access to capital/liquidity	Maximize portfolio returns (↓)	Cybersecurity	Future of work	Technology and cyber
	Social license to operate	Cyber (↓)	Cash optimization	Stakeholders relations	Macro-economic fluctuations
	Controlling capex	Rising costs	Regulatory Changes	Water	H&S, environment
	Environmental	Energy mix	Social awareness	Image of mining	Public perception / license to operate
	Political	Future workforce	Operational runaway	Shareholder expectations	Natural disasters
	Reserve access / replacement	Disruption	Changing fundamentals	Board realignment	Market competition
	Opex	Fraud	Production management	Financing/returns	Liquidity and funding
	Capital allocation	New world commodities (↓)	Capital management	Commodities of the future	New resources/assets

©Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Priority Risks (2019)

- Social license to operate
- Shareholders
- Digitization
- Cash optimization



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

Social License to Operate

- Social conflict around mines vary country to country
- Include traditional land rights, environmental impacts, shared benefit, reputational
- Engage early and openly with communities and clearly define risks and opportunities
- Implement strategies to reduce impacts/create lasting value
- Move from reactive and compensation model to collaborative and synergistic
- Address environmental / legacy issues

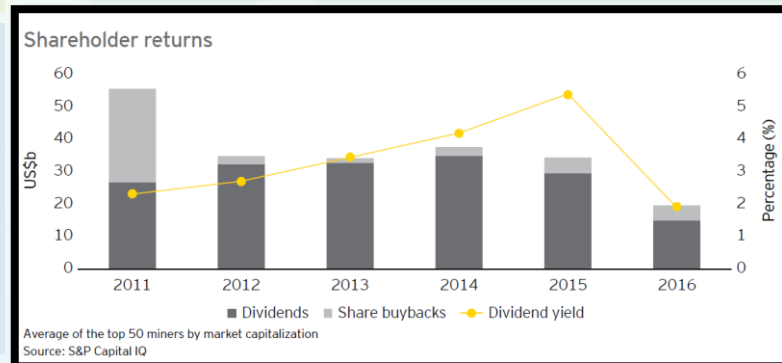
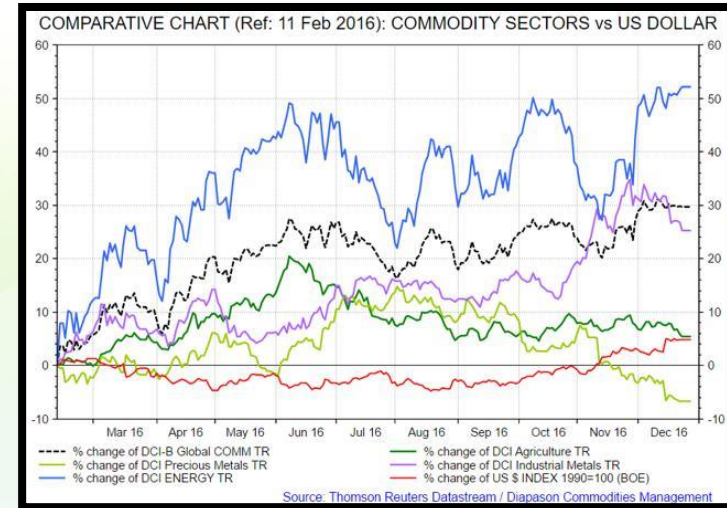
© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Shareholders

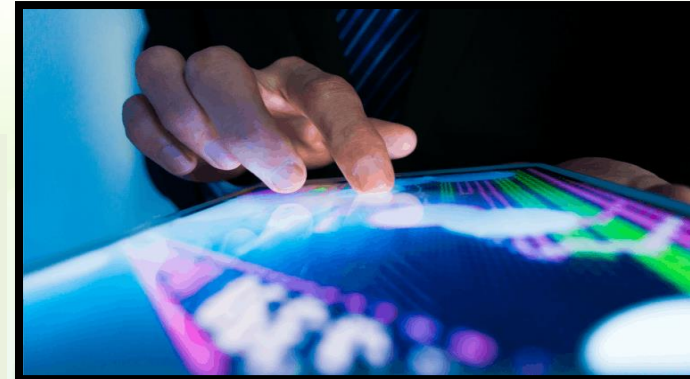
- Returns mediocre at best, slow to issue dividends
- Dividends vs. growth
- Little interest to new investors
- More attract investments e.g. cannabis, tech.
- Investor activism / cautious investors

- Strategic and intelligent growth
- Long term, balanced growth agenda, disciplined capital expectations
- Re-earn investor confidence (the right to grow)
- Innovation / digitization

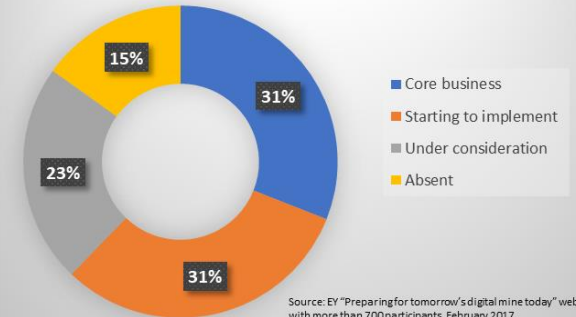


Digital Effectiveness

- Failure to invest in technology could result in loss of competitive advantage
 - Lagging behind out sectors
 - Move from ad hoc tools to full integration
 - Compatibility of systems
-
- Opportunity to improve productivity (asset management, improved reliability, consistency, predictability, optimization, decision making)
 - Blockchain: transparency and traceability; AI/AR/VR



Organizational Priority of the Digital Agenda



Source: EY "Preparing for tomorrow's digital mine today" webcast poll, with more than 700 participants, February 2017

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

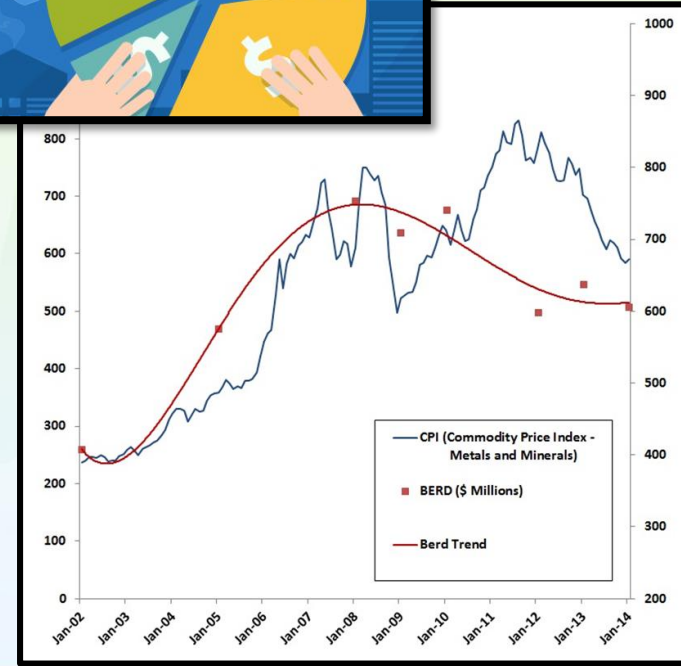
Ressources naturelles
Canada



Canada

Cash Optimization

- From red to black, and back
 - Price volatility, unpredictable fluctuations
 - Slowdown in China
 - Cuts are not sustainable
- Manage shareholder expectations
 - Invest wisely
 - Improve cost structures to cushion adverse price movements



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Moderate Risks

- Cybersecurity
- Regulatory / permitting
- New world commodities
- Reserve replacement
- Geopolitical
- Controlling opex and capex



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

Cybersecurity

- Digitization, autonomy, IoT - increase cyber risk
- Potential attack points are growing with the number or connection points
- Third party vendor risk
- No longer “if” but “when” a cyber attack will occur
- Need for cyber risk assessment and long term prevention plan, security-by-design
- Identify critical cyber control gaps
- Share best practices – Mining and Metals Information Sharing Analysis Centre (MM-ISAC)

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019

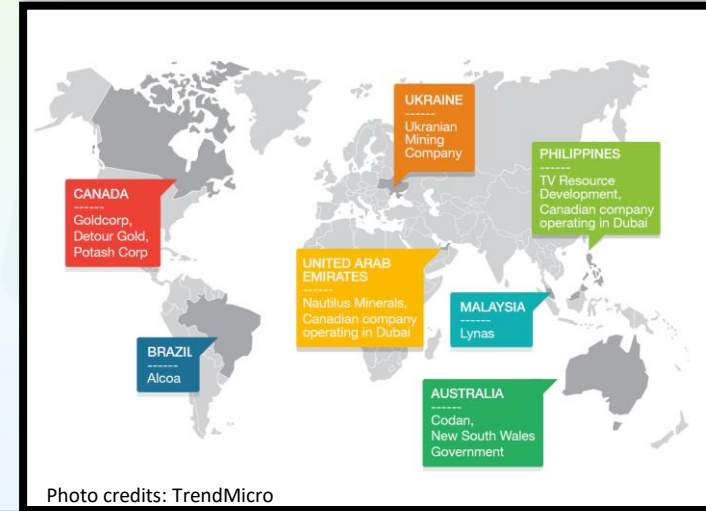
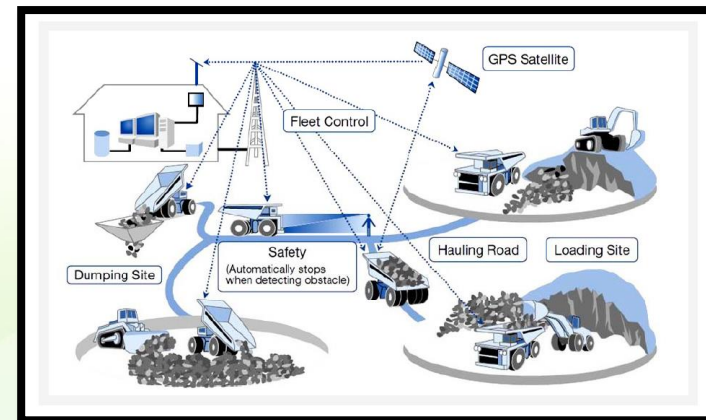


Photo credits: TrendMicro



Natural Resources
Canada

Ressources naturelles
Canada



Canada

Regulatory Risk

- Regulatory framework uncertainty
 - Rising uncertainty to obtain operating permits (increased time in last 10 years)
 - Resource nationalism, export bans
 - Changing/inconsistent regulations
 - Bill C-69
- Need to stay abreast of changes
 - Open and transparent communications
 - Tied to social licence to operate



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada

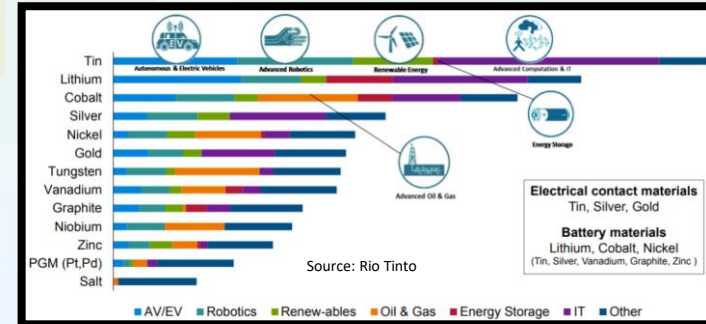
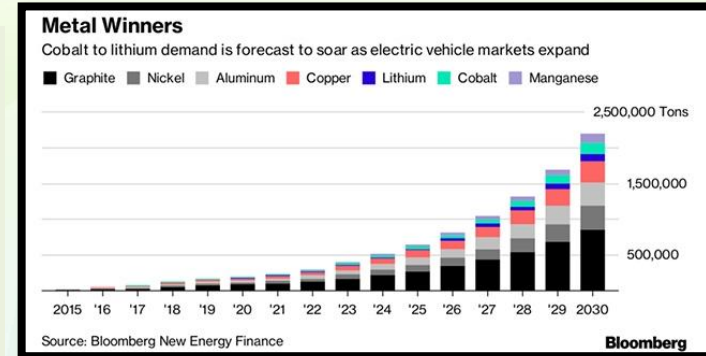


Canada

New World Commodities

- Transitioning to a low carbon and circular economy
 - Tech metals and boutique minerals e.g. lithium, cobalt and graphite
 - Driven many by EV
 - Decline in PGMs, steel, coal
 - Supply risks
- Portfolio diversification, flexible business models
 - Predicting trends – driven by technology
 - Finding novel uses for traditional metals

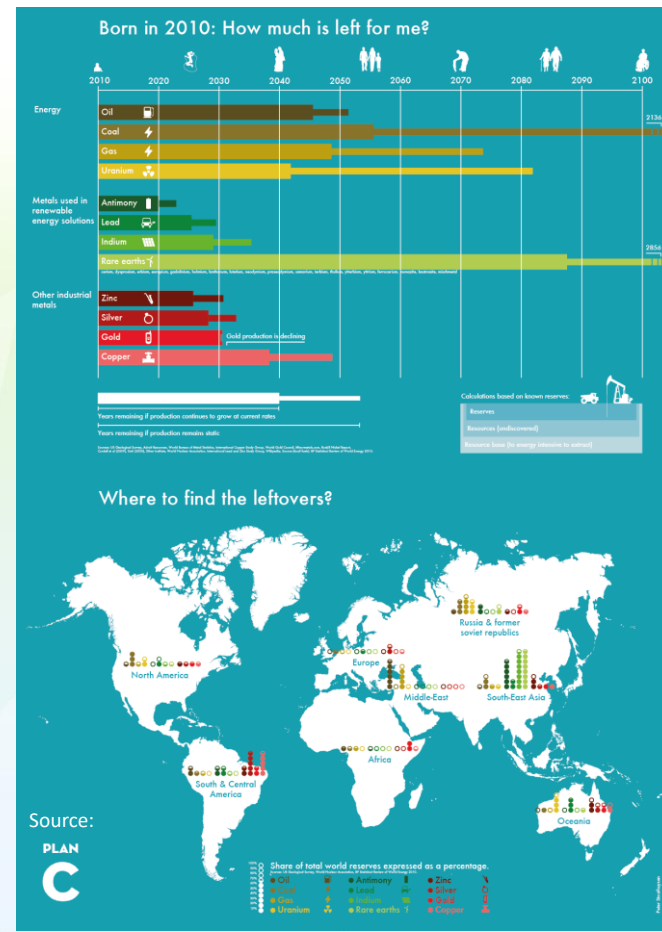
© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Resource Replacement

- Grades are lower, deposits are deeper, and in more remote/difficult areas
- Decline in discoveries and exploration spending
- Cost per discovery are increasing - 1995 \$74M/d, 2015 \$145M/d, 2015 \$2B/d
- Strategic outlook and partnerships, JVs
- New technologies
- ‘Mining Value from Waste’

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



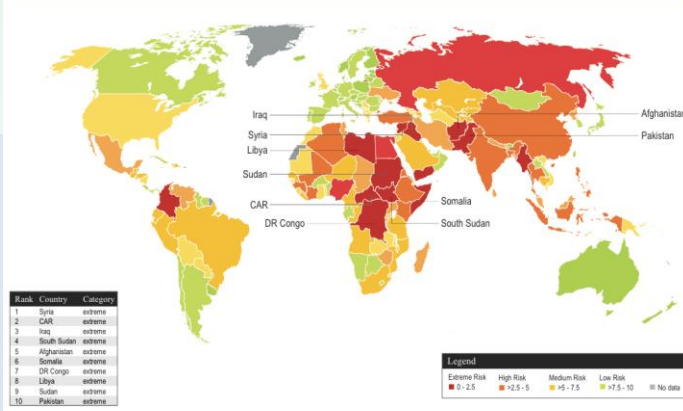
Canada

Geopolitical

- Rising regulatory, geopolitical, economic, and technological uncertainty
 - Corruption, transparency, bribery, illegal mining
 - Resource nationalism, indigenisation, tariffs
 - Anti-mining, environmental concerns
- New markets as a sustainable/ethical supply
 - Canada brand
 - Traceability / provenance / blockchain
 - Big data



Conflict and Political Violence Index 2014 maplecroft



Natural Resources Canada

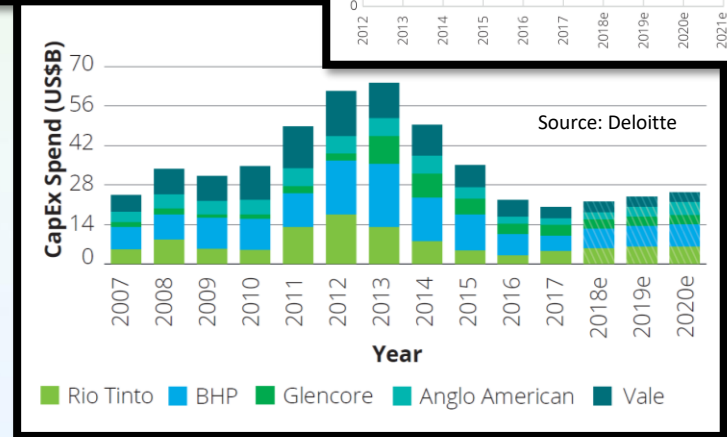
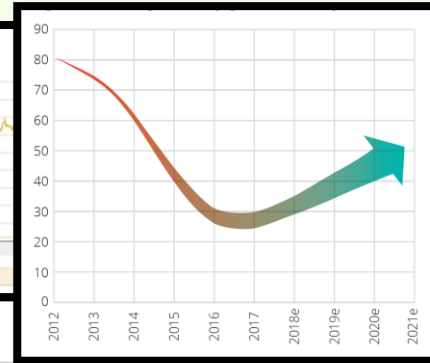
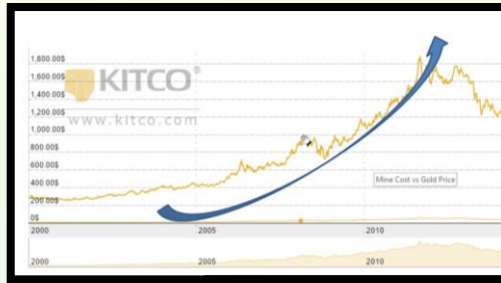
Ressources naturelles Canada



© Maplecroft 2013 | The Towers, St Stephen's Road, Bath BA1 3JZ, United Kingdom | +44 (0) 1223 420 980 | www.maplecroft.com | info@maplecroft.com

Controlling Capex and Opex

- Capex increasing to offset production declines
 - Capex overruns due to poor estimates (25-45%)
 - Opex escalation
- Learn from mistakes, avoid chasing production
 - Implement effective project controls
 - Transition through the project lifecycle
 - Digitize to optimize and increase productivity



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

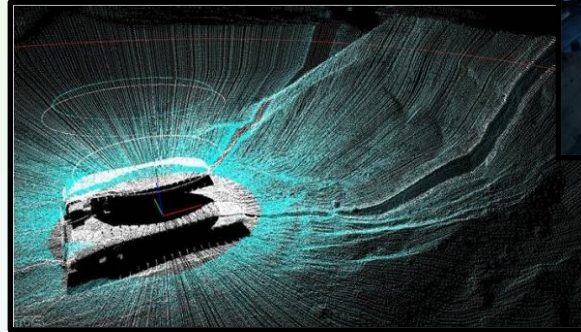
Ressources naturelles
Canada



Canada

Emerging risks

- Skills shortage
- Innovation
- Climate change
- Water
- Energy
- ...



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada 

Public concerns



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada



Apple sets a new environmental goal: No more mining

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada

Canada 

From Risk to Opportunity

- Many of these risks are inter-related
 - ESG performance correlated with stock price
- Shared risk and increased partnership
 - Transparency and engagement
- Adopt greener approaches
 - Lower costs
- Communicate successes and best practices
- Innovate for resilience
- Adopt new models, new approaches



90%

Proportion of cost-capital studies showing that high ESG scores lower cost of capital

88%

Proportion of studies show strong ESG performance yields better corporate operating performance

80%

Proportion of studies demonstrating a positive correlation between high ESG and superior stock performance

Source: From the Stockholder to Stakeholder: How Sustainability Can Financial Outperformance. March 2015

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

Paradigm Shift

- Address the image issue
- Reach the next generation, build diversity
- Attract and retain shareholders
- Build partnerships
- Look outside the sector
- Embrace change
- Show and share value (not just economic)



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Photo credits: PWC Art of mining:
Stornoway Diamonds, Lundin, Noront

Canada

Green Mining



Processes, approaches, and technologies that provide an economic advantage while protecting the environment. Ultimately providing **lasting social value**.



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada



GroundTruth Exploration Inc.



Natural Resources
Canada

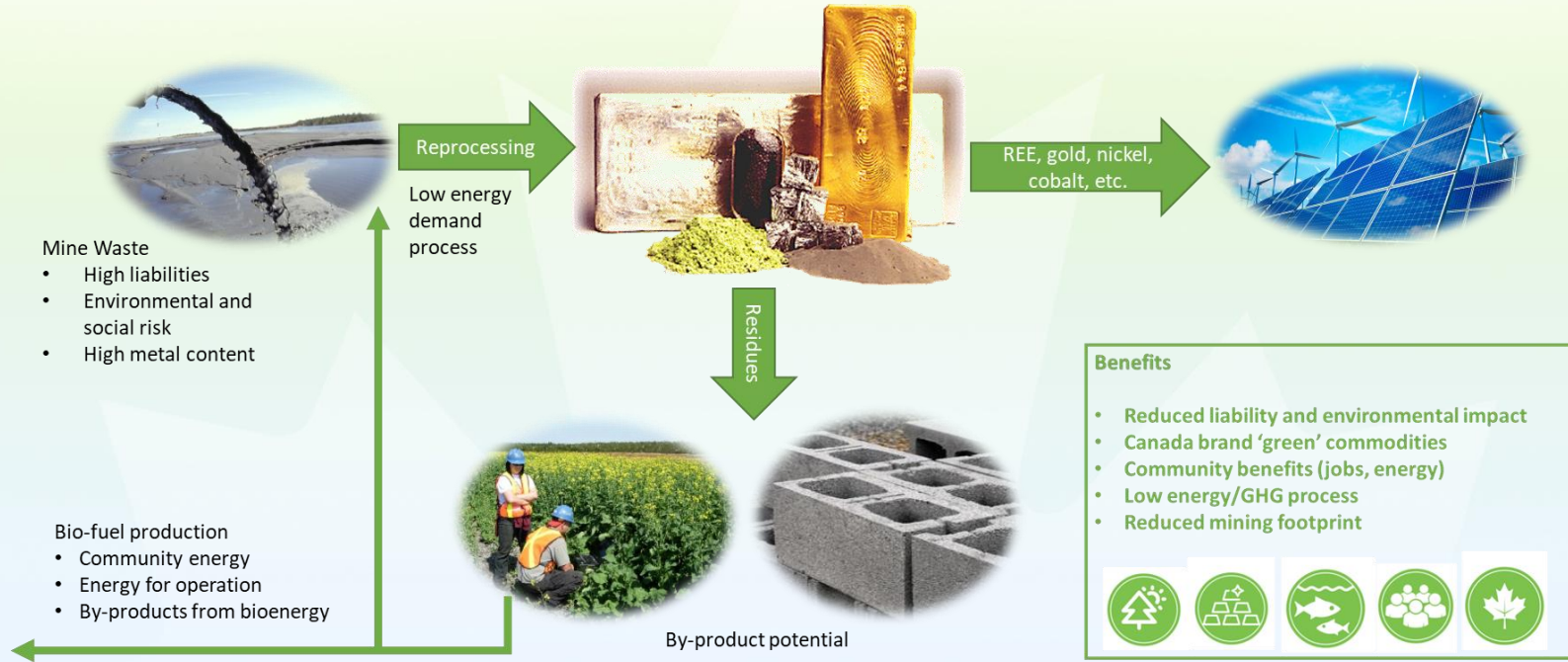
Ressources naturelles
Canada



Canada

Mining Value from Waste

Advancing a circular and low-carbon economy



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

Mining's Contribution to Society

- OneCIM initiative
- An interactive travelling exhibit
- Expand awareness of the essential contribution mining makes to society



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

In Closing

- Expect and continually assess risks
- Manage with agility
- Opportunity to transform risks to provide a competitive advantage
- Learn from past performance
- Adjust to new world realities



32

Source: Nordic E&MJ



Source: Fraser Institute



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada

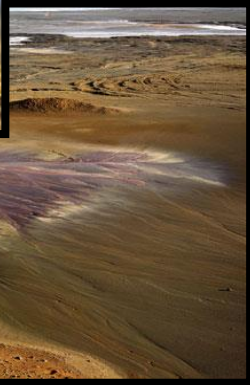
Discussion...



**Management & Economics
Society**



Thank you



Janice Zinck
Janice.Zinck@canada.ca

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2019



Natural Resources
Canada

Ressources naturelles
Canada



Canada 