New Tech, New Deal:
Findings and new directions for the changing face of mining

IGF Report Launch Webinar

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THE COMING NEW TECHNOLOGIES

Drivers

- More difficult geology
- Declining ore deposits
- Declining productivity
- H&S of workers
- Environmental impact
- Sustainability
- Fast-tracked by COVID19

Source: IGF 2019
TRENDS BY 2025

90% IoT & connected devices
87% Cloud computing
83% Encryption & Cybersecurity
62% E-commerce and digital trade
57% Power storage and generation
57% Virtual reality
76% Text, image & voice processing
83% Big data analytics
76% Non-humanoid robotics & connected wearables
57% A.I (ML, neural networks)

Source: WEF, 2020
LIKELY IMPACTS: STAKEHOLDERS SPECIFIC

For mining industry:
✓ Improved efficiency (labour; assets; operation)
✓ Higher productivity
✓ Improved work & workers safety

For communities:
✓ Changes in occupations and jobs
✓ Ripple effects on local economies
✓ Gendered implications

For Governments:
✓ Balance of socio-economic benefits
✓ Revenues
✓ Possible implications for ASM

Expect fundamental changes:
✓ New actors as strategic investors
✓ Innovation and R&D hubs more prominent
✓ Different expertise and knowledge needed
ELEMENTS OF
A NEW DEAL

Employee in the mine of the future
Leverage mining for diversification
Improved tax regimes
Technologies as a solution
1. EMPLOYMENT

Skills and education
- National policies: curricula including basic education + lifelong learning + more STEM
- (Re/up) skilling and (re) training

Partnership Approach
- Need timely info on investment plans, skills needed
- Partnerships between mining companies & educational institutions

Supporting policies
- Local procurement policies and accompanying supply chain development support
- Training incentives/mandates

Need baseline information: skills gaps, curriculum gaps
2. TECHNOLOGY AS A SOLUTION

Local innovation to support mining operations

Mining technology in support of local economic diversification

Shared connectivity

Supplying local communities with data of interest

Using mine-level data to support tax authorities
3. LEVERAGING MINING FOR DIVERSIFICATION

**POLICY**

- Innovative social impact investment mechanisms

**OPTIONS**

- Local content policies: procurement, beneficiation
- Government-led efforts supporting transition
Can taxation make up for the loss of employment-related benefits?

- Tax excess profits for benefit of communities, displaced workers
- May be no excess profits to tax

**BUT:** Increased taxation can’t be the only policy pursued – misses all the other opportunities, collaborations, described above.

- $370 billion/yr
- $200 million/yr
- 25%

- Estimated value of technology innovation to mining (McKinsey, 2015)
- Rio Tinto’s savings per year from robotic process operation
- BHP’s cost reductions for drilling, from automation at Jinglebar mine
CONCLUSIONS

01 Disruptive changes are coming quickly
- Governments need to adapt laws, regulations, institutions, fiscal regimes
- Mining companies need to be proactive on e.g. skills, social investments

02 Prerequisite for success:
- Baseline data: job impacts, existing & needed skills
- Partnership approach: governments, companies, communities/workers

03 Important to get it right:
- Development issue
- Social licence issue

So much we still don’t know.
THANK YOU

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