

Virtual Industry Summit

IP Introduction

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Industry Principal
October 2020





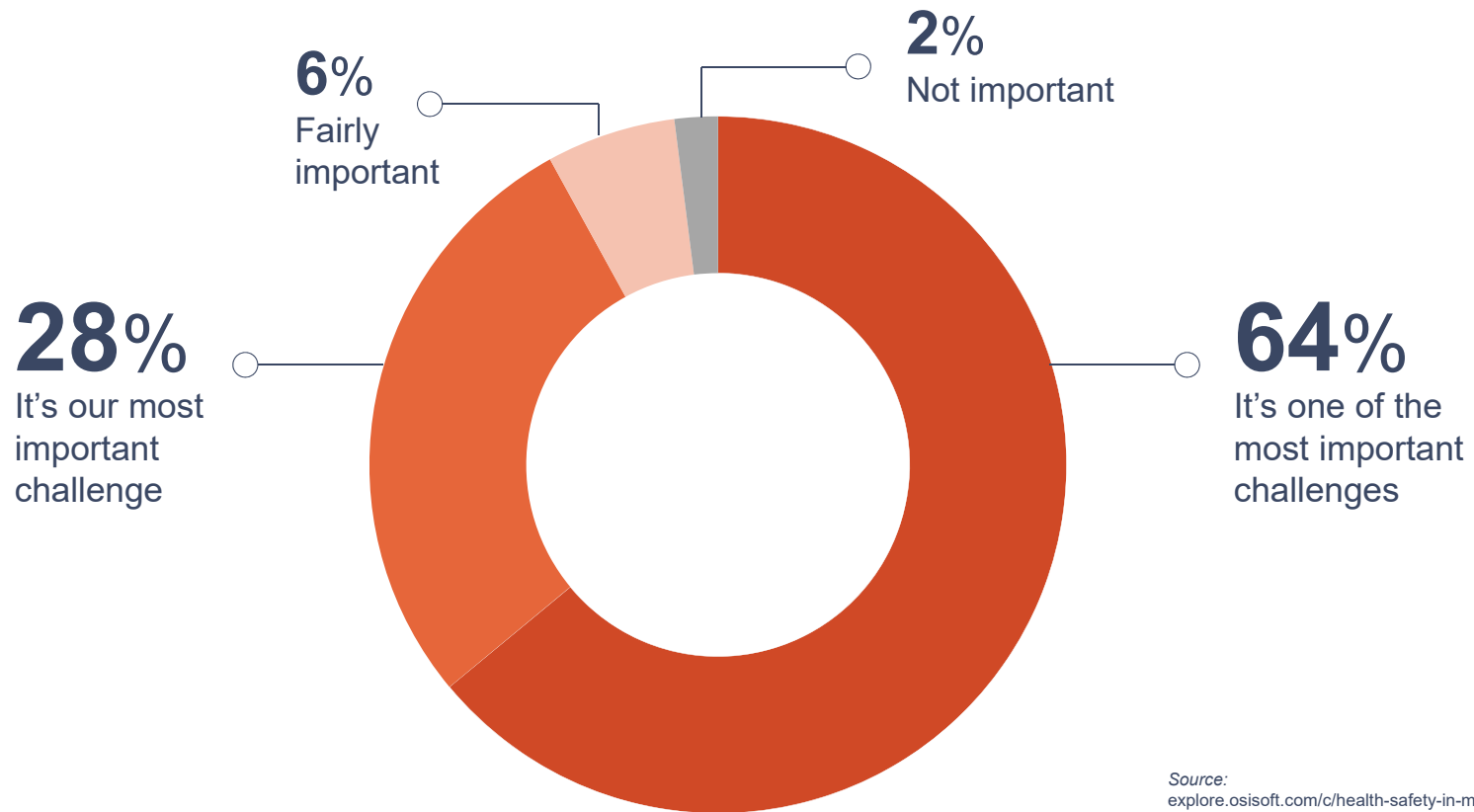
Agenda

- Introduction
- Norsk Hydro presentation
- Liberty Ostrava presentation
- Ma'aden presentation
- Digital Twins Discussion
- Conclusion



Introduction

Safety is one of mining's most critical challenges



Source:
explore.osisoft.com/c/health-safety-in-mining?x=ySHQ0B&lx=XIVIng

Impacts of injuries go beyond people



Reduced productivity



Increased costs



Equipment damage



Reputational damage



Insurance payouts



Regulatory penalties

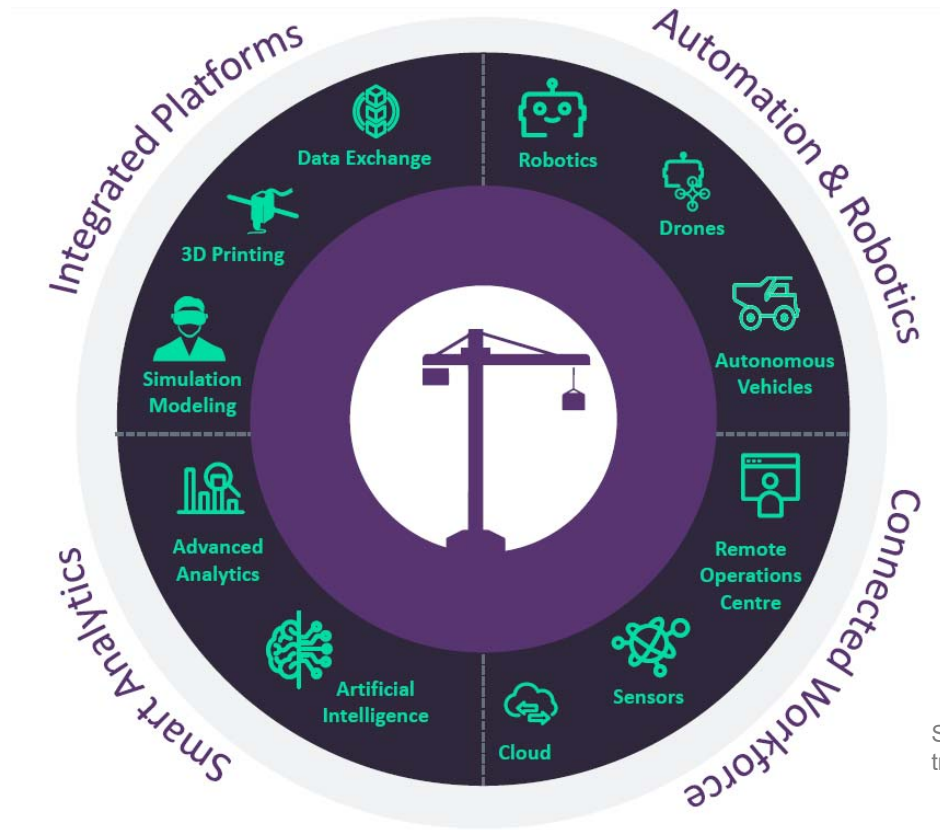
Cloud adoption increases

19%
increase

Source:
mining.globaldata.com/Analysis/details/thematic-research-covid19-impact-on-cloud-services



Key Themes for the Digital Plant



Source: <https://mining.globaldata.com/Analysis/details/digital-transformation-initiatives-in-metals-mining>

**\$2
billion**

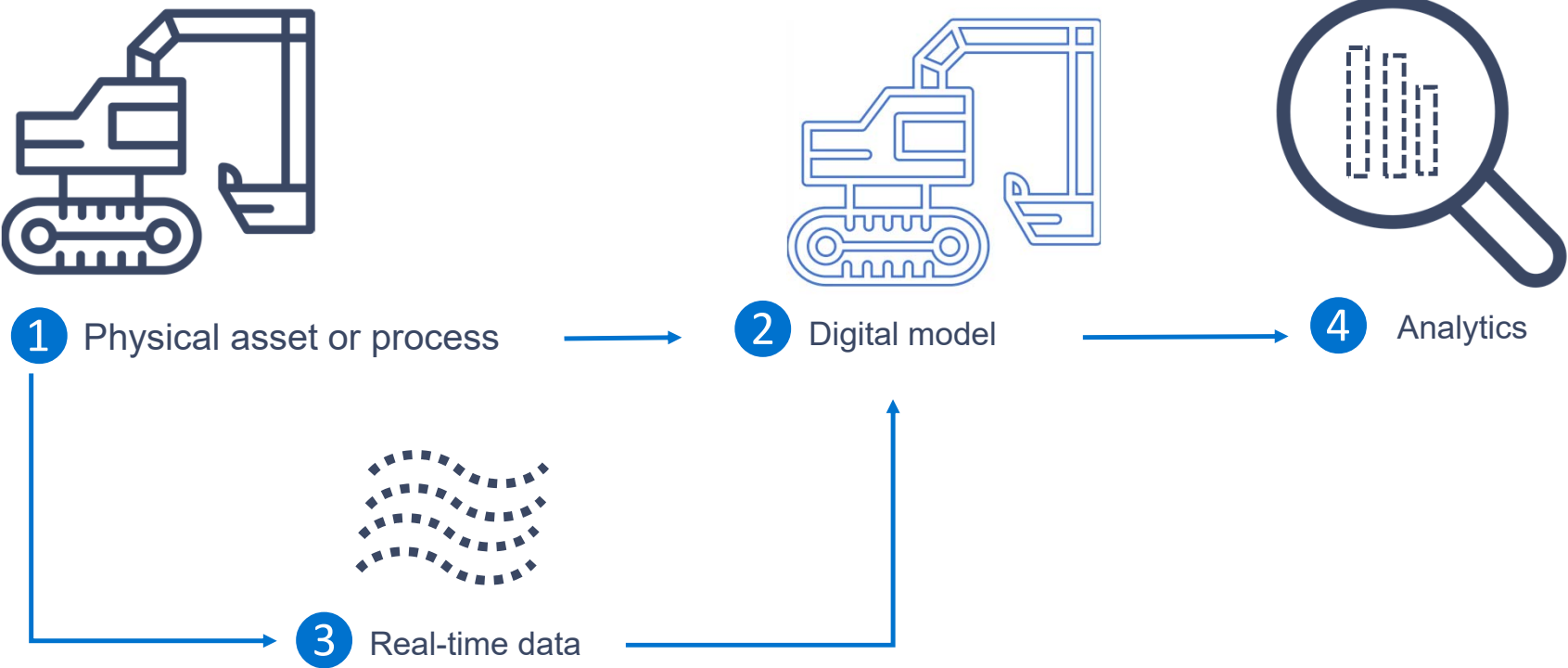
Resources spend on AI
by 2023

**\$240
billion**

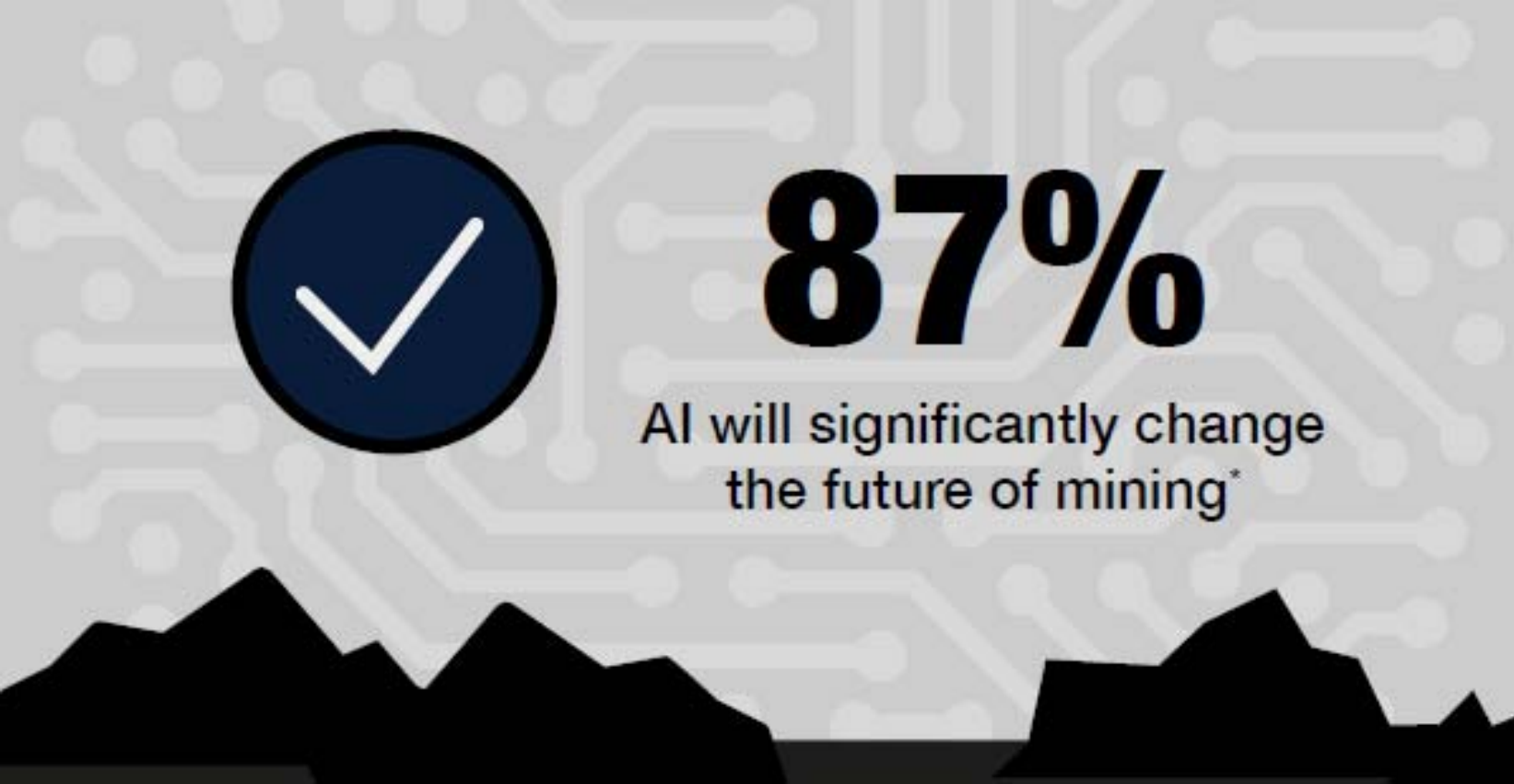
Global spend on AI
by 2024



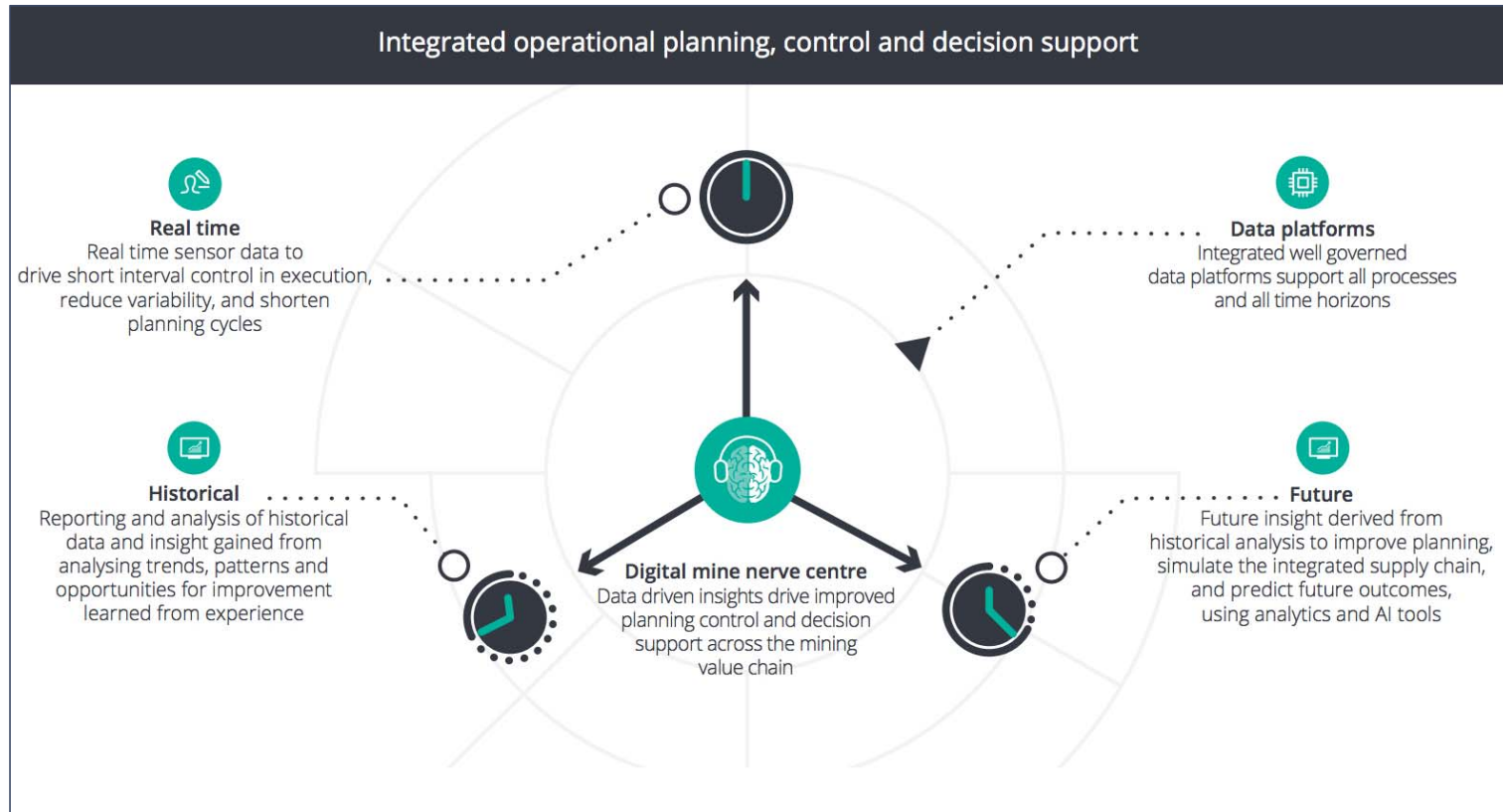
A digital foundation for digital twins



AI will change the industry



Data in different time horizons



Source: Deloitte
www2.deloitte.com/content/dam/Deloitte/mx/Documents/energy-resources/2018/Tracking-the-Trends-2018.pdf

Where Mining, Metals & Materials Companies Find Value



Process Productivity

Real Time / Condition Process Monitoring

Ad-hoc visualization / real time trending

Material flow, pacing and supply chain



Energy & Water

Real Time energy & water Monitoring

Reduce Fuel/ Coal/ Propane Consumption

Mobile equipment Fuel Efficiency



Asset Reliability

Improve uptime & Reduce unplanned downtime

Real Time Equipment Monitoring

Condition-based & Predictive maintenance



Environment Health & Safety

Real Time Environment, Health & Safety monitoring

Governmental regulations

Accidents and incidents

Compliance and audit



Quality Assurance

Real Time monitoring

Root-cause analysis and prevention of excursions

Genealogy / product history

Yield improvement



KPIs & Reporting

Plant-wide to enterprise visibility

Common definitions & calculations

Benchmarking & comparison

Dashboards & KPI reporting

Key takeaways



Digital transformation
enables improvement



Different time horizons
Past, present and future



Real time operational
data infrastructure

Thank you



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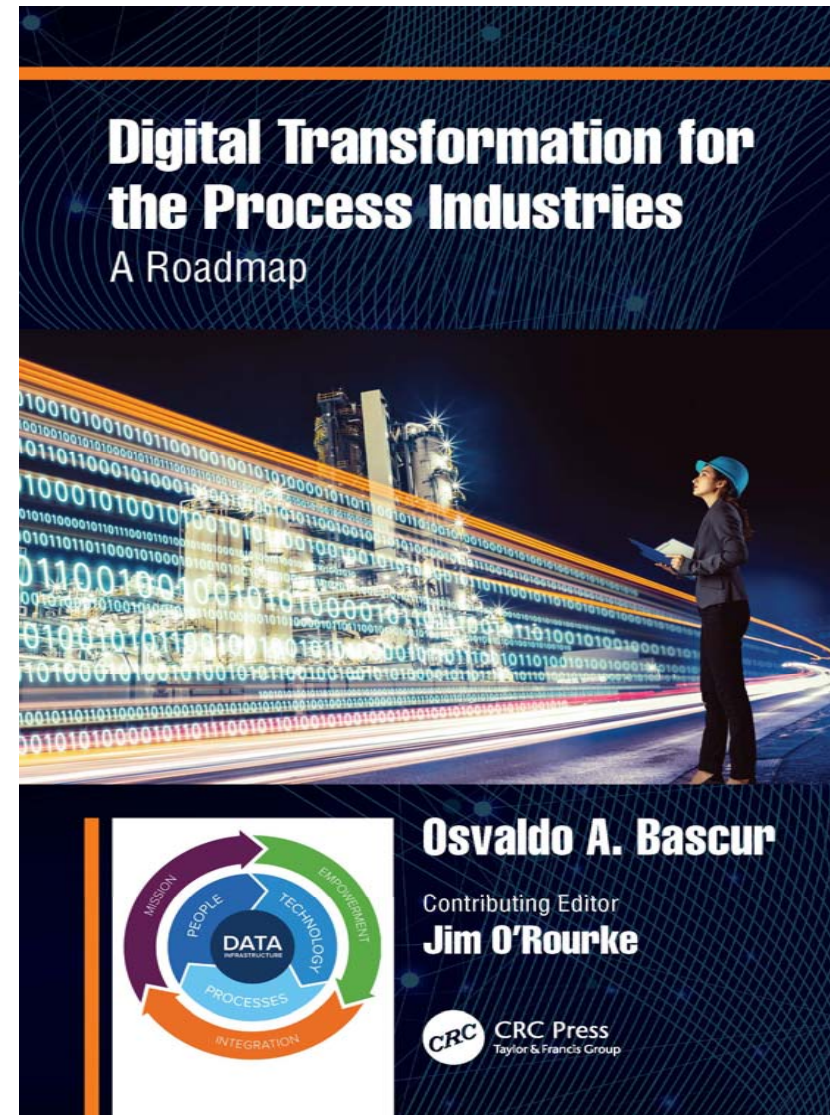
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 МАХАДСАНИД
 GO RAIBH MAITH AGAT
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 GRACIAS
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 TAK DANKE
 RAHMAT
 HATUR NUHUN
 PAXMAT САГА
 CÁM ƠN BẠN
 WAZVIITA
 TAPADH LEIBH
 KEA LEBOHA
 БАЯРЛАЛАА
 MISAOTRA ANAO
 WHAKAWHETAI KOE
 DANKON TANK TAPADH LEAT
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