

Modernizing the (Gold) Mining Life Cycle

Digital's value-add and implications

Frederick T Cawood

Director Minserv

Professor Emeritus (Mine Surveying): School of Mining Engineering University of the Witwatersrand
Visiting Scholar BGRIMM Technology Group

Visiting Professor University of Johannesburg and China University of Mining and Technology

2023 World Gold Conference 5-7 September 2023, Shenyang New World EXPO



Minserv

Mineral Development
& Research Services

Serving Responsible Mining

Issues and Challenges

1. Our issues (Not only South African)

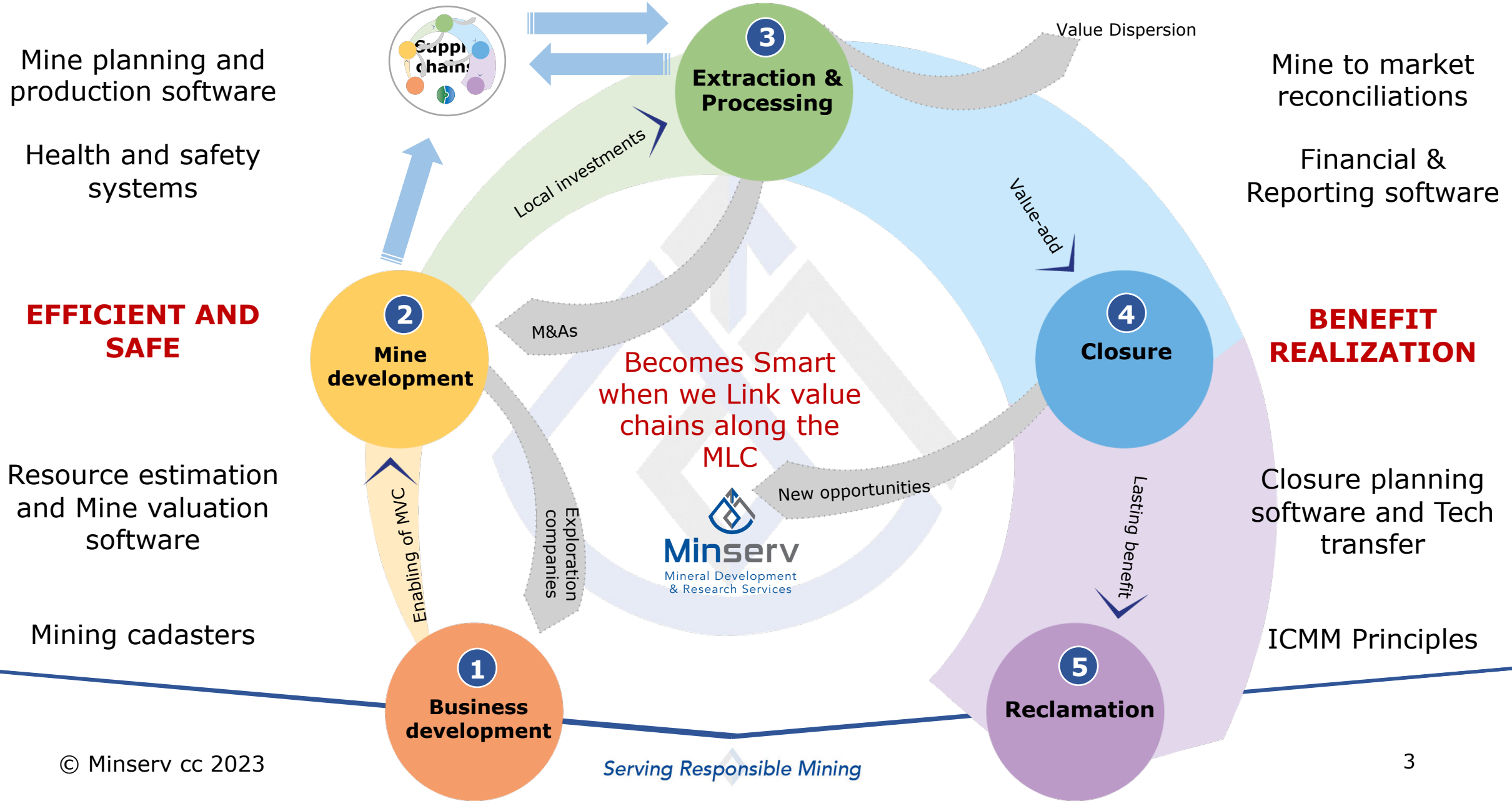
- Deeper in an already harsh environment
- Continuous state of Transition and Defence
- Vulnerable to geopolitical events and market prices

2. Some challenges

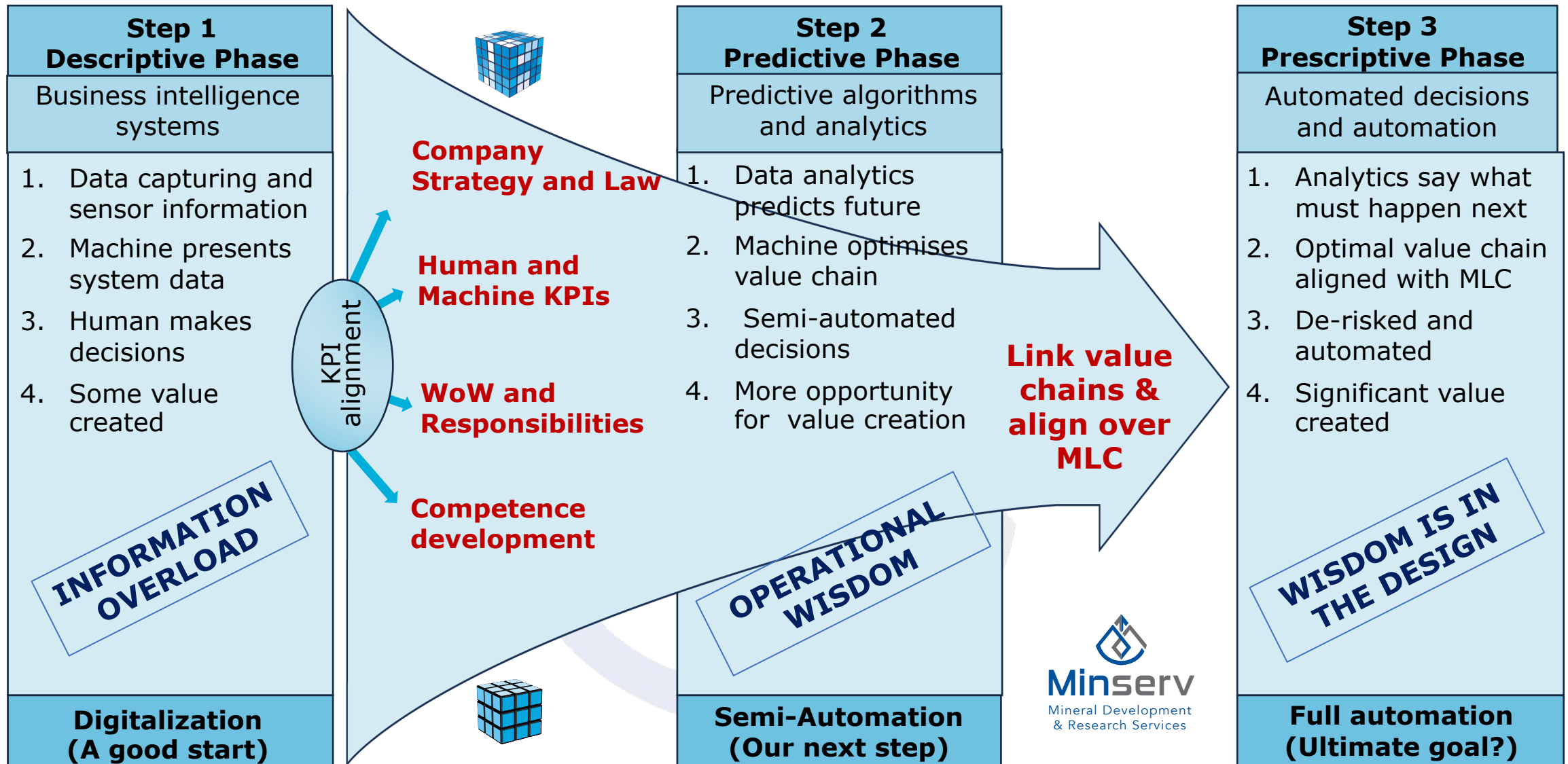
- Mining conditions and Workplace efficiency
- Specialized skills
- Government understanding

These require sharing leading practices and research

Mine digitalization is not new



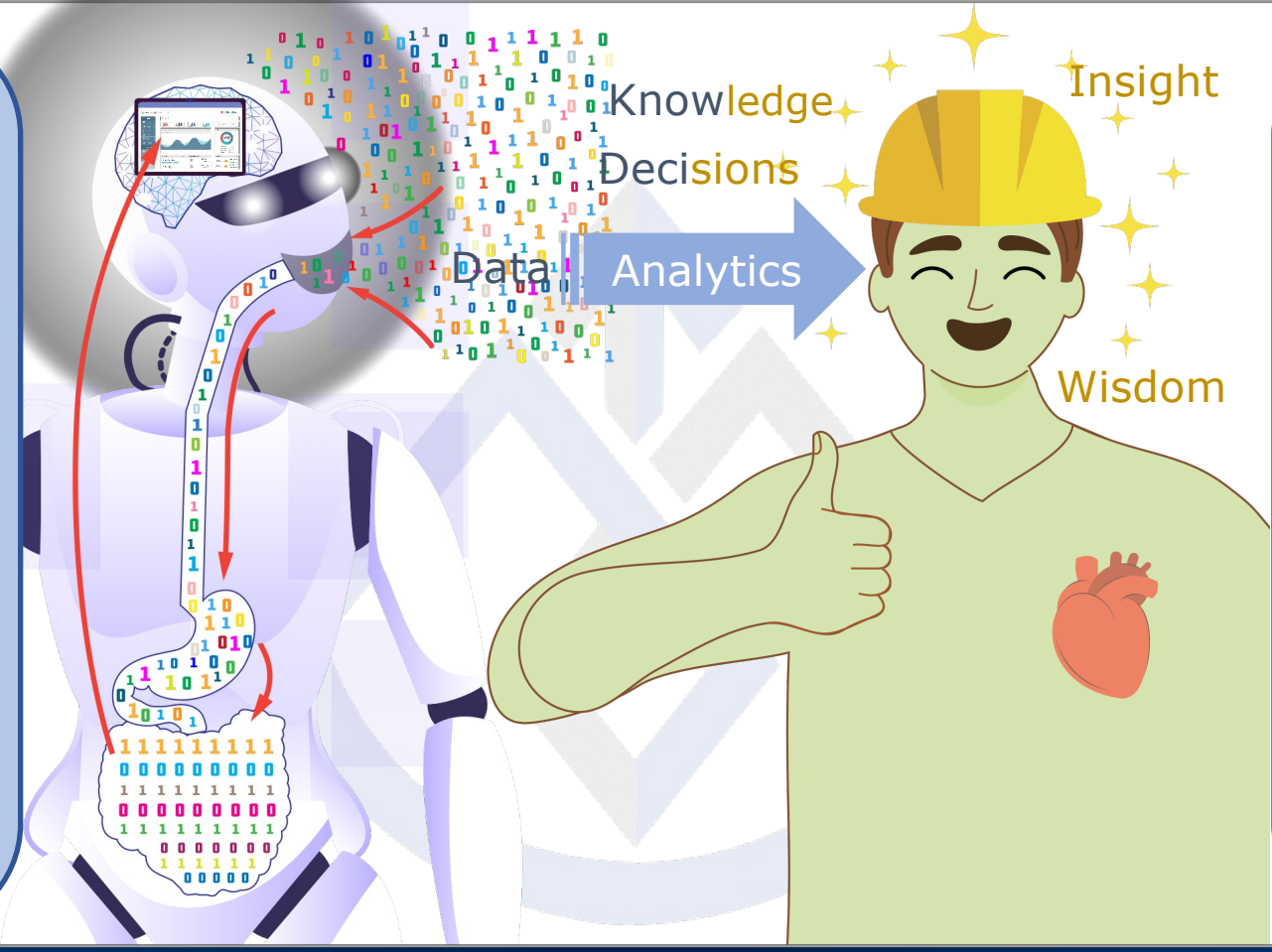
Approach to Advanced Analytics and Automation for the Mining Sector



Maximizing potential of humans and machines

Two questions to ask (HBR, 2023)

1. "When does it make sense to shift from traditional human-centred methods to greater automation of analytics and decision-making?"
2. "How can we take an appropriate balance between the two?"



Our response will determine our future

1. Can we communicate with machines?
2. Can we design / build / install / maintain machines?
3. Can we question machine answers?

It is our choice who should be in charge!

THANK YOU