ILLEGAL MINING MAPPER

SANSA 2019 Earth Observation Challenge

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THE PROBLEM

There is no reliable illegal mining monitoring system in South Africa

GOLD

- R14.4bn lost per year
- SARS
- National Treasury

SAFETY & ENVIRONMENT

- Water
- Mercury pollution
- Physical Hazards
- Communities

THE PROBLEM

Canal at Florida
A) Built by CGS for DMR – destroyed by illegal miners

Illegal mining at van Ryn
B) Old mine workings reopened
C) Village created on site

THE SOLUTION

- Illegal mining monitoring system
  - High-resolution satellite imagery
    - RadarSAT-2
    - Worldview-3
  - Process
    - Finding patterns and anomalies in the data
    - Machine learning
    - Deep learning
  - Maps
  - Active intelligence
    - Near Real Time Alerts

PRIMARY - Management of gold resources

- Spatial and temporal patterns
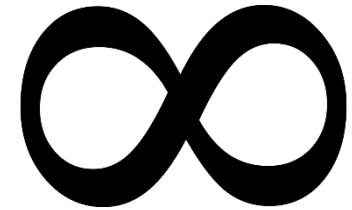- High risk zones and greatest rate of gold loss

SECONDARY – Effects of illegal mining management

- Security
- Municipalities
- Research
- Water & Environment

Development locally expand globally
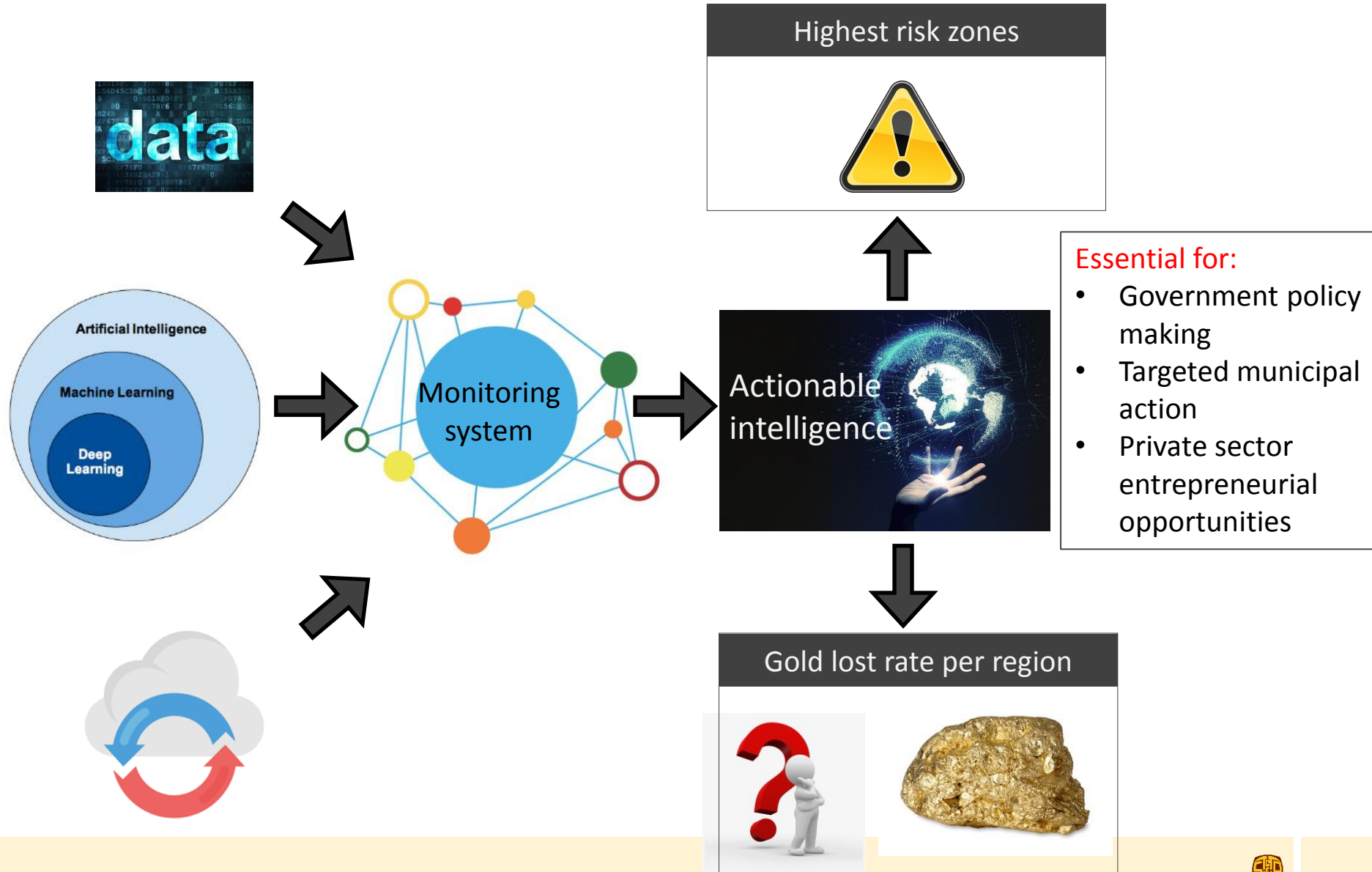
New IP

Entrepreneurial opportunities

True value: Business and Environmental Intelligence

BUSINESS MODEL

data

Artificial Intelligence

Machine Learning

Deep Learning

Monitoring system

Highest risk zones

Actionable intelligence

Essential for:
- Government policy making
- Targeted municipal action
- Private sector entrepreneurial opportunities

Gold lost rate per region

OUR KEY TEAM MEMBERS

Mine water experts

GIS, spatial analyst and database expert
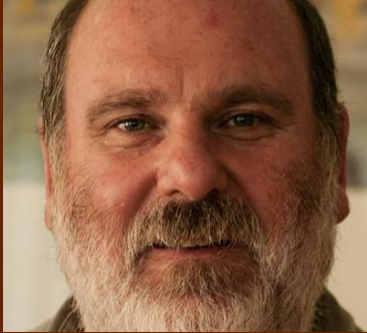
Dr Henk Coetzee

Dr Viswanath Vadapalli

Dr Chiedza Musekiwa

AI expert

Machine learning and remote sensing expert

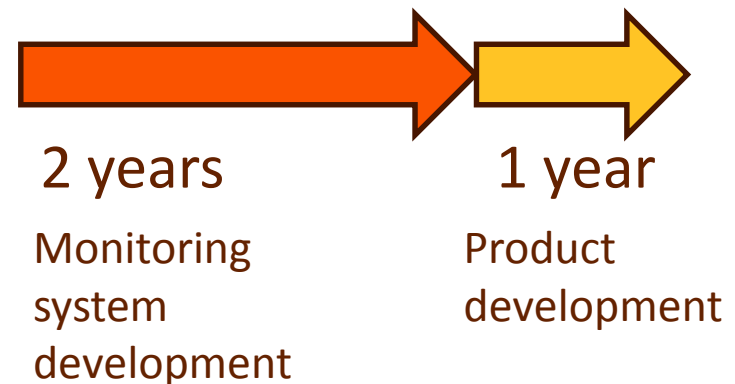Dr Emmanuel Sakala

Ms Gabrielle Denner

OUR ADVANTAGE

Team
- – Experience
- – Interdisciplinary ability

FUNDING NEEDS AND TIMELINE

- EO data
- Cloud infrastructure
- Product development
- Marketing

Timeline

2 years

Monitoring system development

1 year

Product development

CONTACT INFO

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THANK YOU