



4TH ANNUAL SADC INDUSTRIALISATION WEEK

Towards more sustainable Mining Value Chains

Beeuwen Gerrits

Department of Science & Innovation (DSI)

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Contents

- Mining – why change?
- South African Mining Extraction RDI strategy (SAMERDI)
- Mining Equipment Manufacturing
- Technological support for supply chain development
- Recommended way forward

Mining in South Africa

- Abundance of mineral wealth reserves
 - All minerals
 - US\$ 4.7 trillion
 - Non energy related minerals
 - US\$ 2.5 trillion*
- World number #1 in:

- PGMs (87.7%)
- Chromium (72.4%)
- Manganese (80%)
- Gold (12.7%)

*Source: Technology Innovation Agency 2015/2016

Importance of mining

- SA mining industry has been the cornerstone of the economy
- Mining led the first industrialisation in South Africa
- Contribution of 8% to GDP
- Dependency ratio of 1:15 for every mine employee



R286 billion
contribution to
2015 GDP

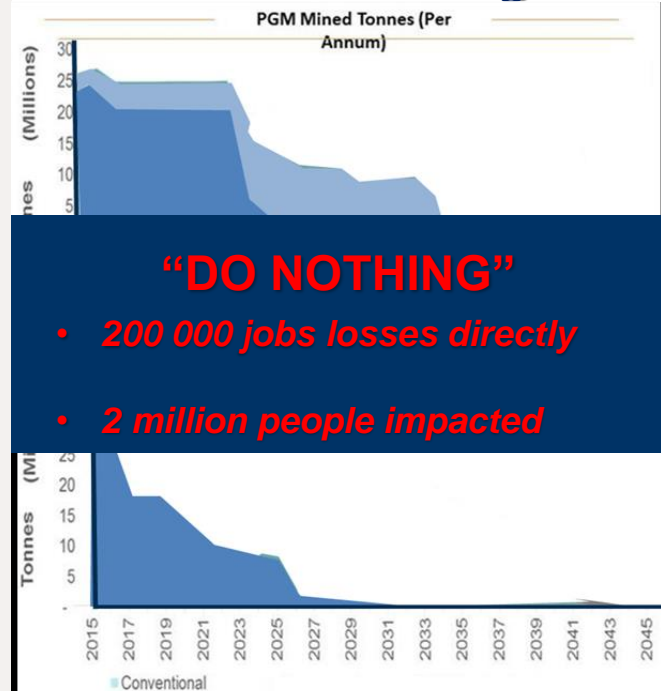


R116.7 billion
employee earnings

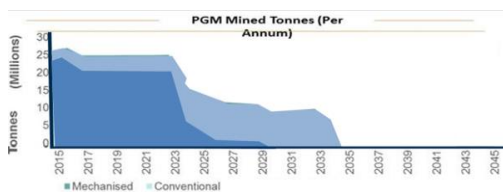


457 698
direct jobs created

Crisis in Mining



Reviving Mining through Research, Development & Innovation



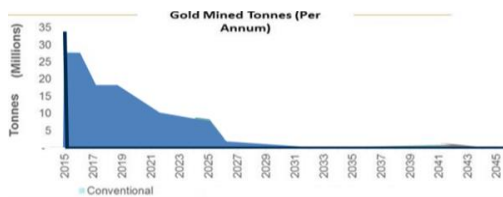
**SOUTH AFRICAN MINING EXTRACTION
RESEARCH, DEVELOPMENT & INNOVATION STRATEGY"
(SAMERDI)**



*To maximise the returns of South Africa's mineral wealth through
collaborative, sustainable*

*Research, Development, Innovation and Implementation
of mining technologies in a
socially, environmentally and financially manner*

that is rooted in the wellbeing of local communities and the national economy."



Increasing the Life of current mining

- *More from the same
with the same*
- *Focus on mines with
limited LoM*

**ZERO HARM
JOB PRESERVATION**



Accessing orebodies that will not be accessed using current conventional methods

- *Zero Harm*
- *Productivity increase*
- *Specialised local
manufactured
equipment*

**ZERO HARM
JOB CREATION**



Accessing orebodies even deeper orebodies

- *Revolutionary change
to mining*
- *Mining only the reef,
all the time*

**ZERO HARM
JOB CREATION**



SAMERDI Strategy

SOUTH AFRICAN MINING EXTRACTION RESEARCH DEVELOPMENT & INNOVATION

- Increasing the Life of current mining
- Accessing orebodies that will not be accessed using current conventional methods
- Accessing orebodies even deeper orebodies



CROSS CUTTING INITIATIVES

Advance Orebody - the ability to "see" ahead of the rock

Real-time Information Management Systems- - converting information to knowledge and wisdom

Successful Applications of Technology MAP - understanding why technologies either work or fail and its impact on people

BENEFIT

- Increase safety
- Increase efficiency by knowing where the reef is
- Information is collected, processed and managed to allow for proactive and predictive decision
- Understanding the pitfalls when technology is implemented
- Change management principles

Fourth Industrial Revolution (FIR) pilot environment

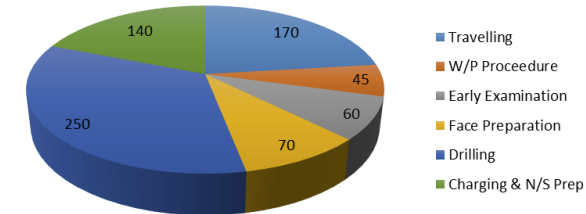
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Next Generation Mining equipment

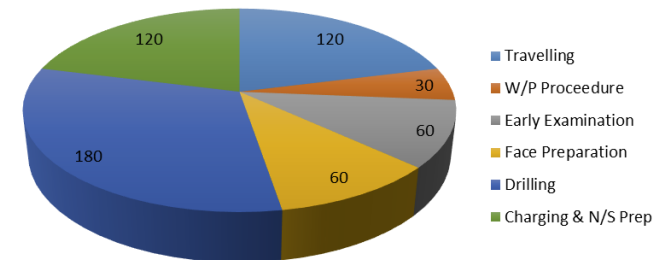
- Baselines established
- Gaps identified
- Over 40 technologies identified
- Trials underway
- Stakeholder engagements



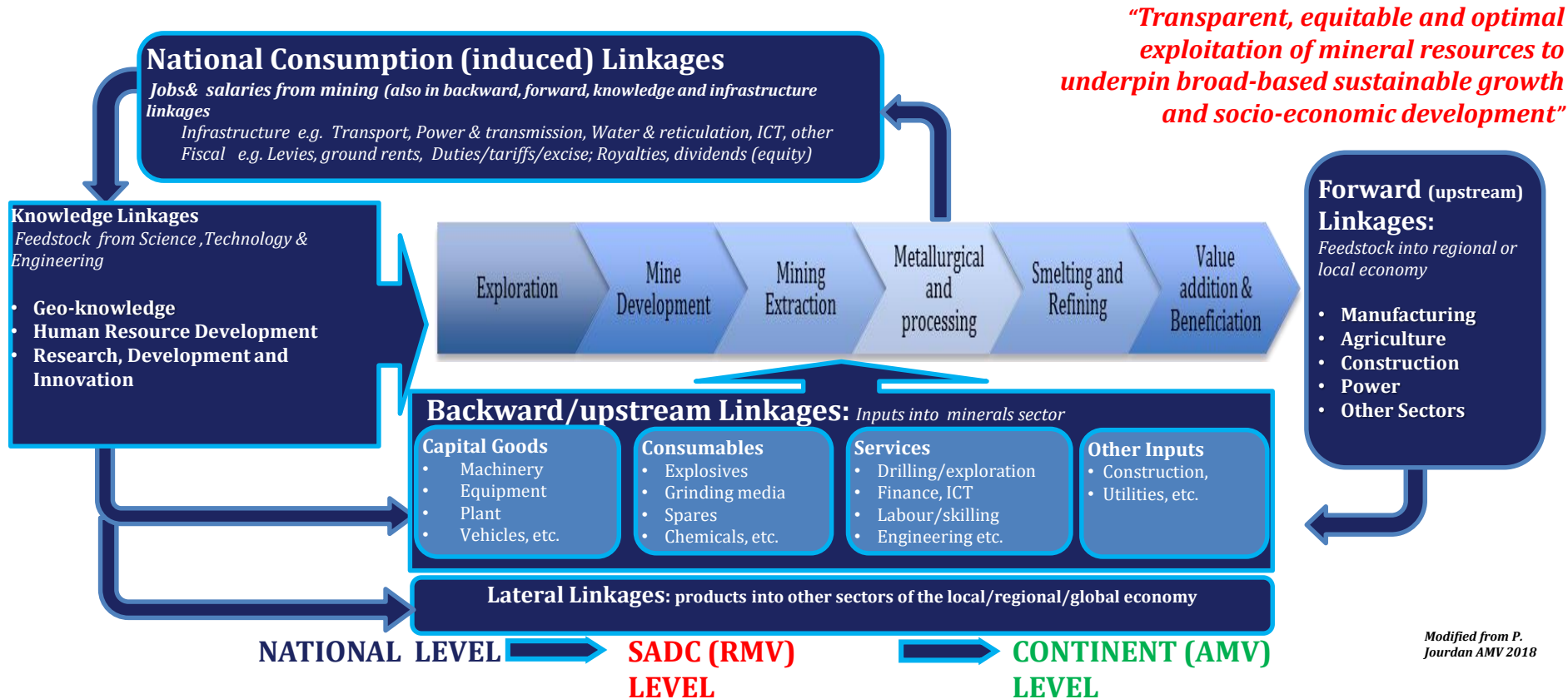
**Challenging Conditions - time to complete mining cycle
Gold Operation (735 minutes)**



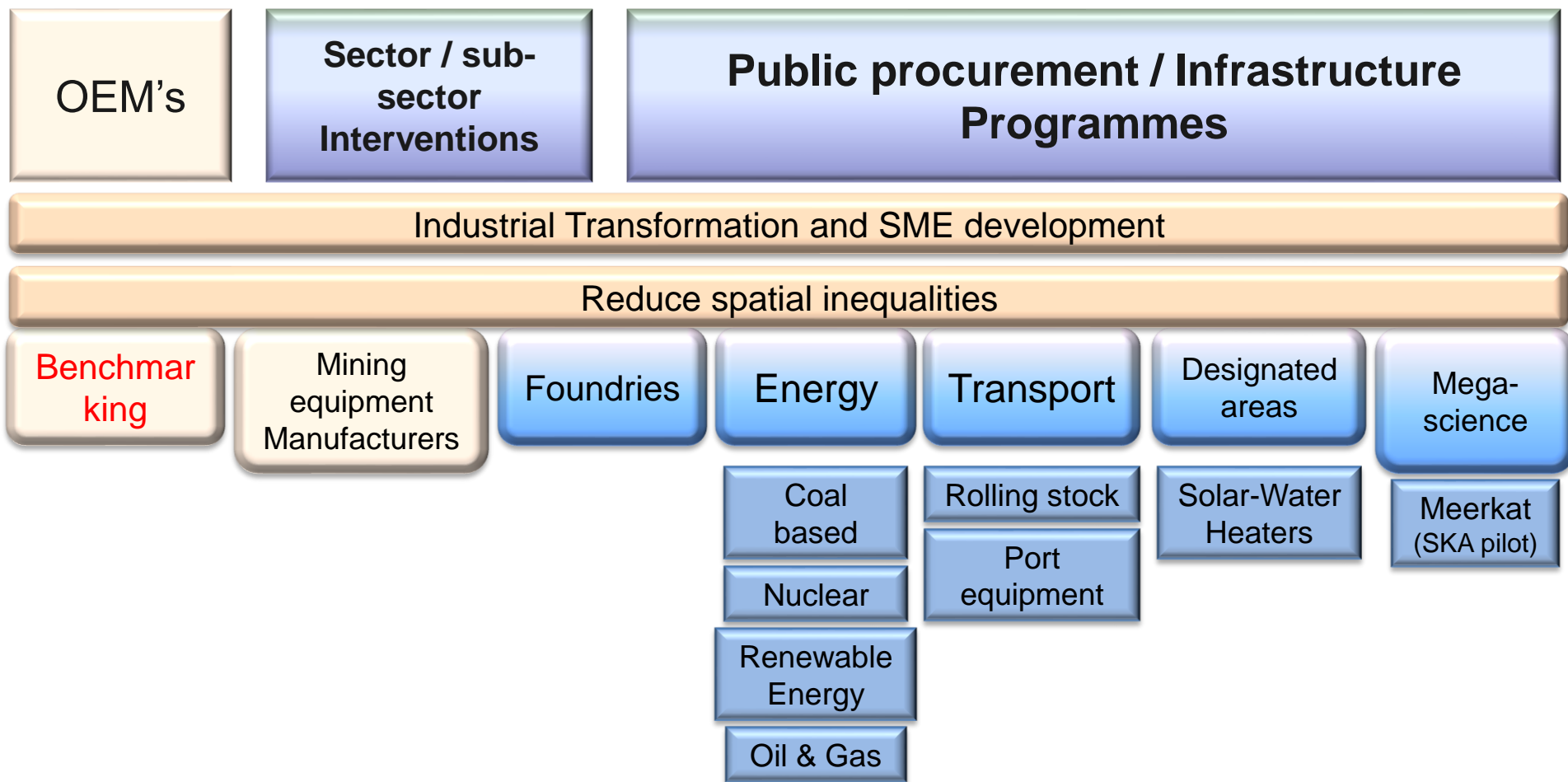
**Potential time to complete mining cycle
Gold Operation (570 minutes)**



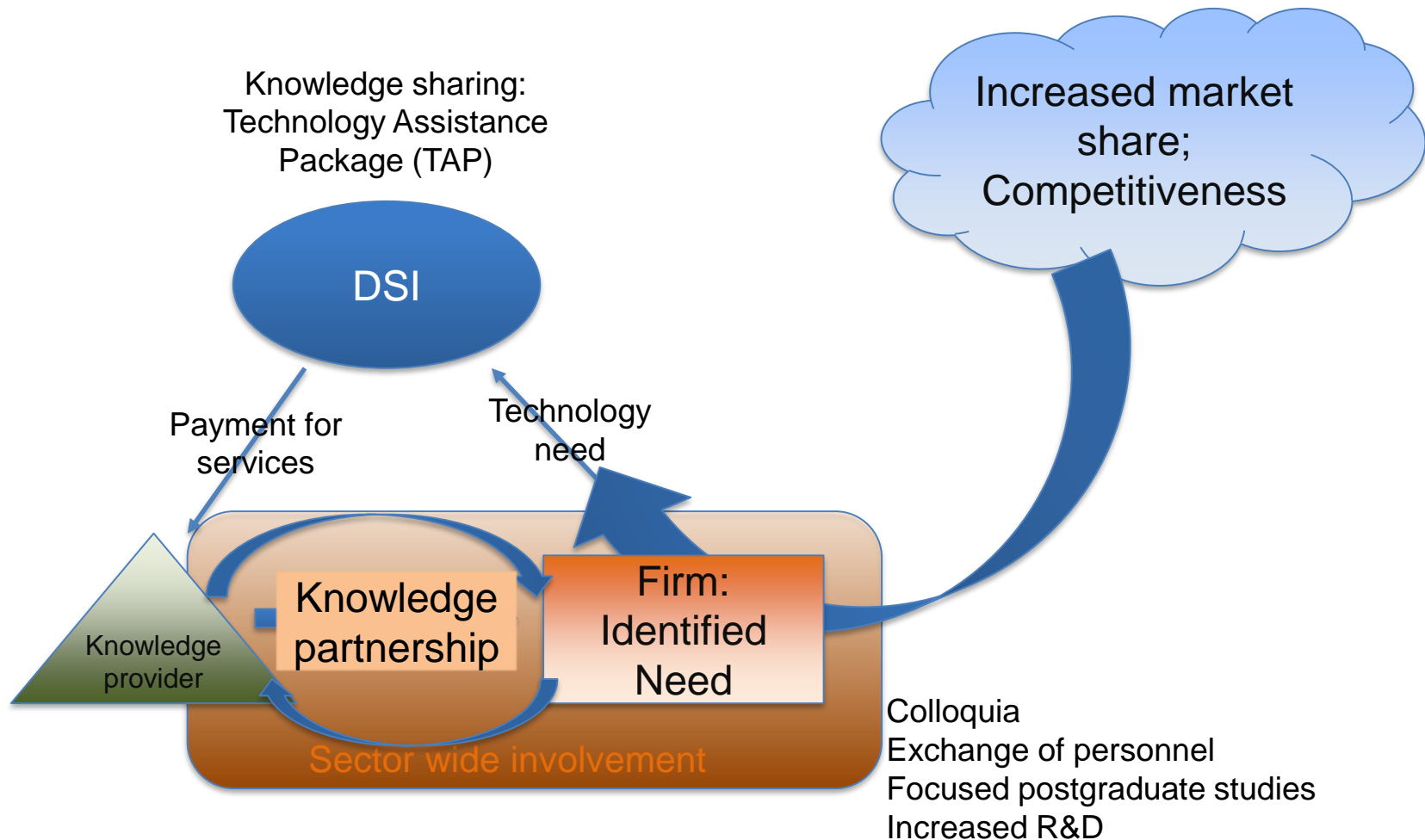
Mining and its important linkages



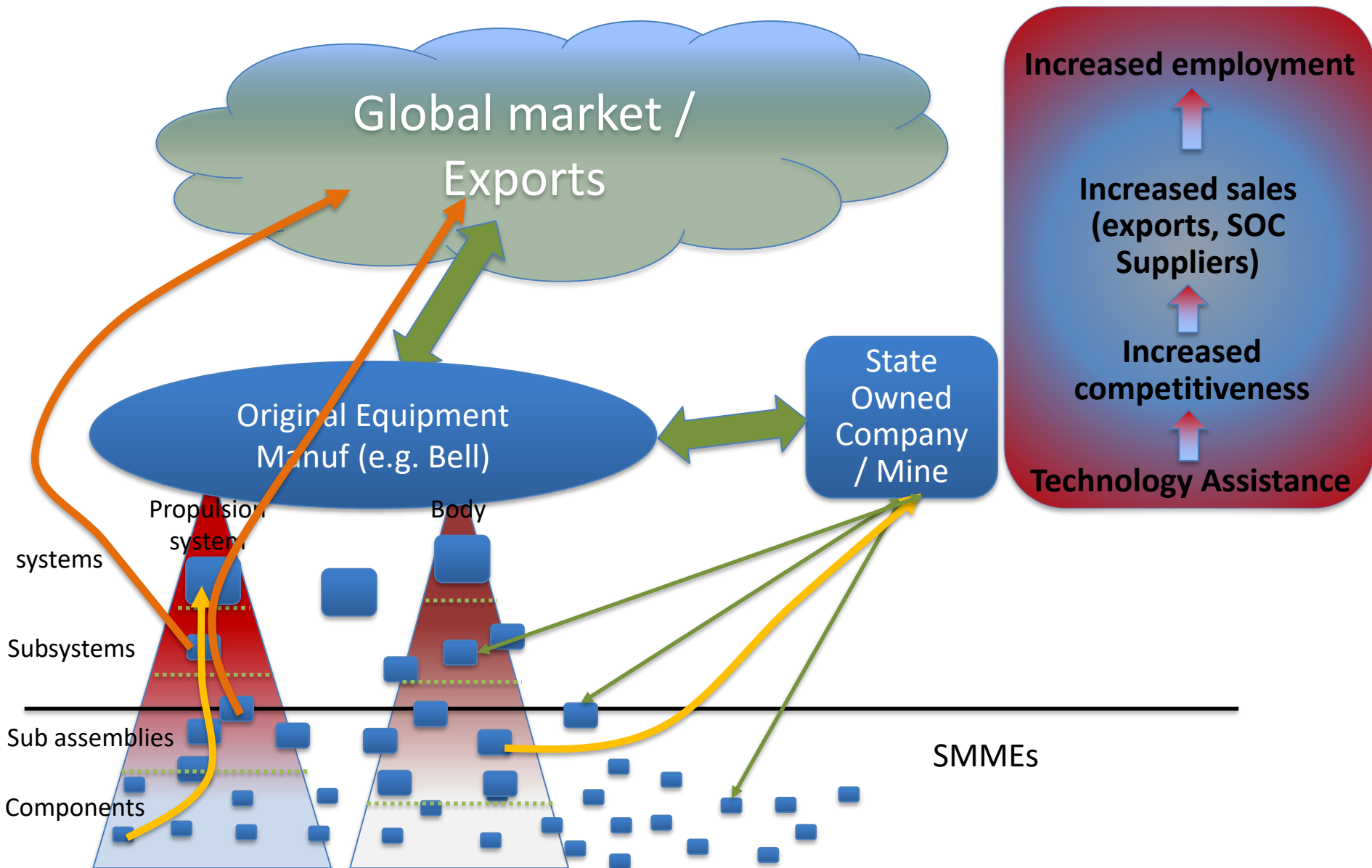
Technology localisation for supplier development: Focus Areas



Technology assistance / technology transfer approach



Technological upgrading of firms



Recommendations for the way forward

1. Finalise & approve the Regional Minerals Value Chain work {underway} – value proposition for distributed manufacturing and support of mining equipment.
2. Develop a SADC mining equipment firm/supplier & support services database
3. Initiate a pilot programme for the Technological upgrading / supplier development of local firms
 - Adapt the current Technology Localisation approach, to enable piloting in at least 2 SADC member countries
 - Benchmark ± 5 firms in 2 SADC member countries
 - Determine technological gaps and develop technology assistance packages
 - Implement as a pilot project, 2 technology assistance packages
 - Evaluate pilot and scale-up if successful



Dankie
Enkosi
Ha khensa
Re a leboga
Ro livhuwa
Siyabonga
Siyathokoza
Thank you

Asante
Asante 'kwa hii
e dupe
Merci
Merci Botondi Natondi
Natondi yo Ebote mingi
Mesi
Misaotra anao
Natotela
Obrigado
Shukraan
Waita hako
Zikomo

