



## 4<sup>TH</sup> ANNUAL SADC INDUSTRIALISATION WEEK

# Towards more sustainable Mining Value Chains

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- **Mining – why change?**
- **South African Mining Extraction RDI strategy (SAMERDI)**
- **Mining Equipment Manufacturing**
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- **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

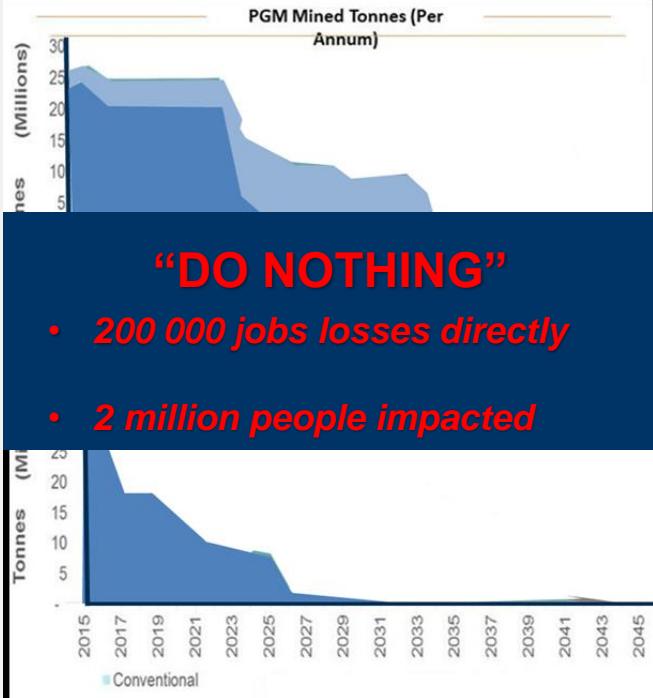


R116.7 billion employee earnings



457 698 direct jobs created

### Crisis in Mining



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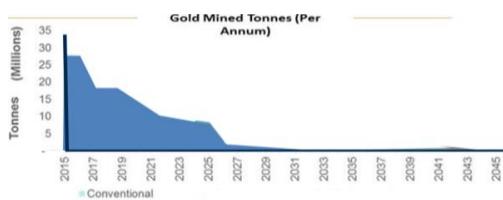
## Reviving Mining through Research, Development & Innovation



**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



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## 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	BENEFIT
<b>Advance Orebody - the ability to "see" ahead of the rock</b>	<ul style="list-style-type: none"> <li>• Increase safety</li> <li>• Increase efficiency by knowing where the reef is</li> </ul>
<b>Real-time Information Management Systems- - converting information to knowledge and wisdom</b>	<ul style="list-style-type: none"> <li>• Information is collected, processed and managed to allow for proactive and predictive decision</li> </ul>
<b>Successful Applications of Technology MAP - understanding why technologies either work or fail and its impact on people</b>	<ul style="list-style-type: none"> <li>• Understanding the pitfalls when technology is implemented</li> <li>• Change management principles</li> </ul>

**Fourth Industrial Revolution (FIR) pilot environment**



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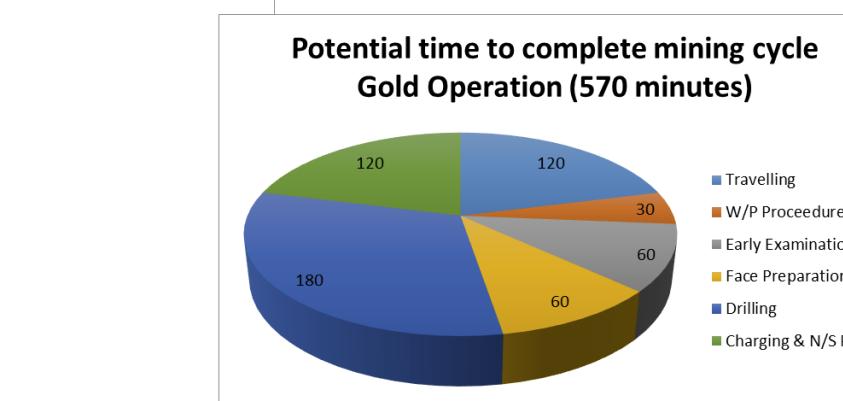
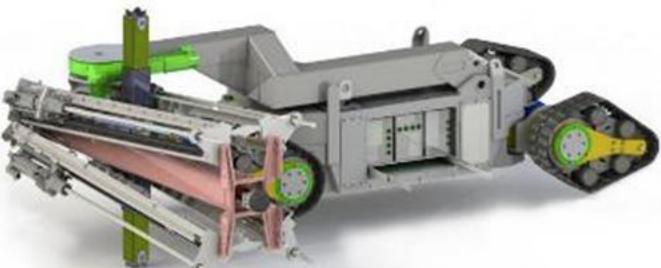
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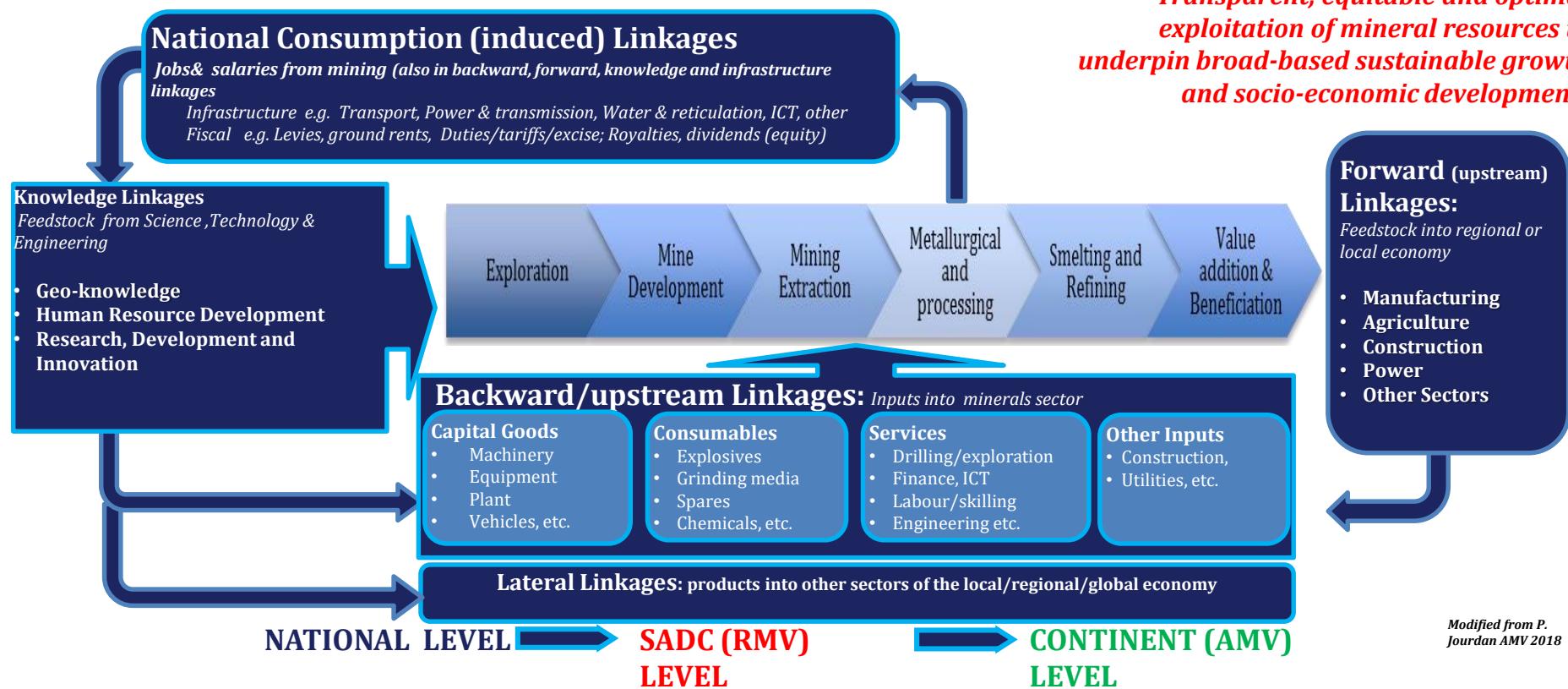
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## Next Generation Mining equipment

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



## Mining and its important linkages



## Technology localisation for supplier development: Focus Areas

OEM's

Sector / sub-sector  
Interventions

Public procurement / Infrastructure  
Programmes

Industrial Transformation and SME development

Reduce spatial inequalities

Benchmarking

Mining equipment  
Manufacturers

Foundries

Energy

Transport

Designated  
areas

Mega-science

Coal  
based

Rolling stock

Solar-Water  
Heaters

Nuclear

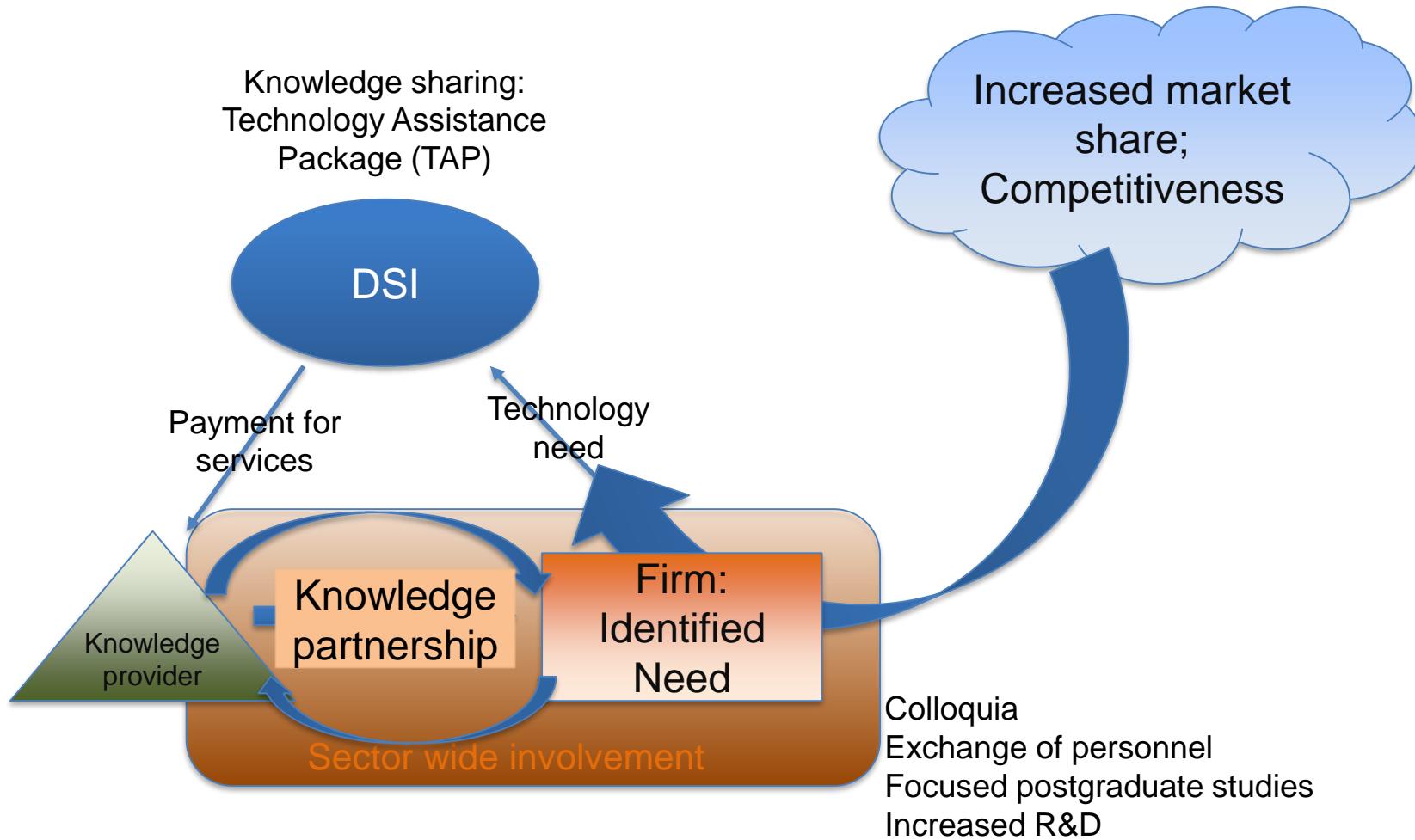
Port  
equipment

Meerkat  
(SKA pilot)

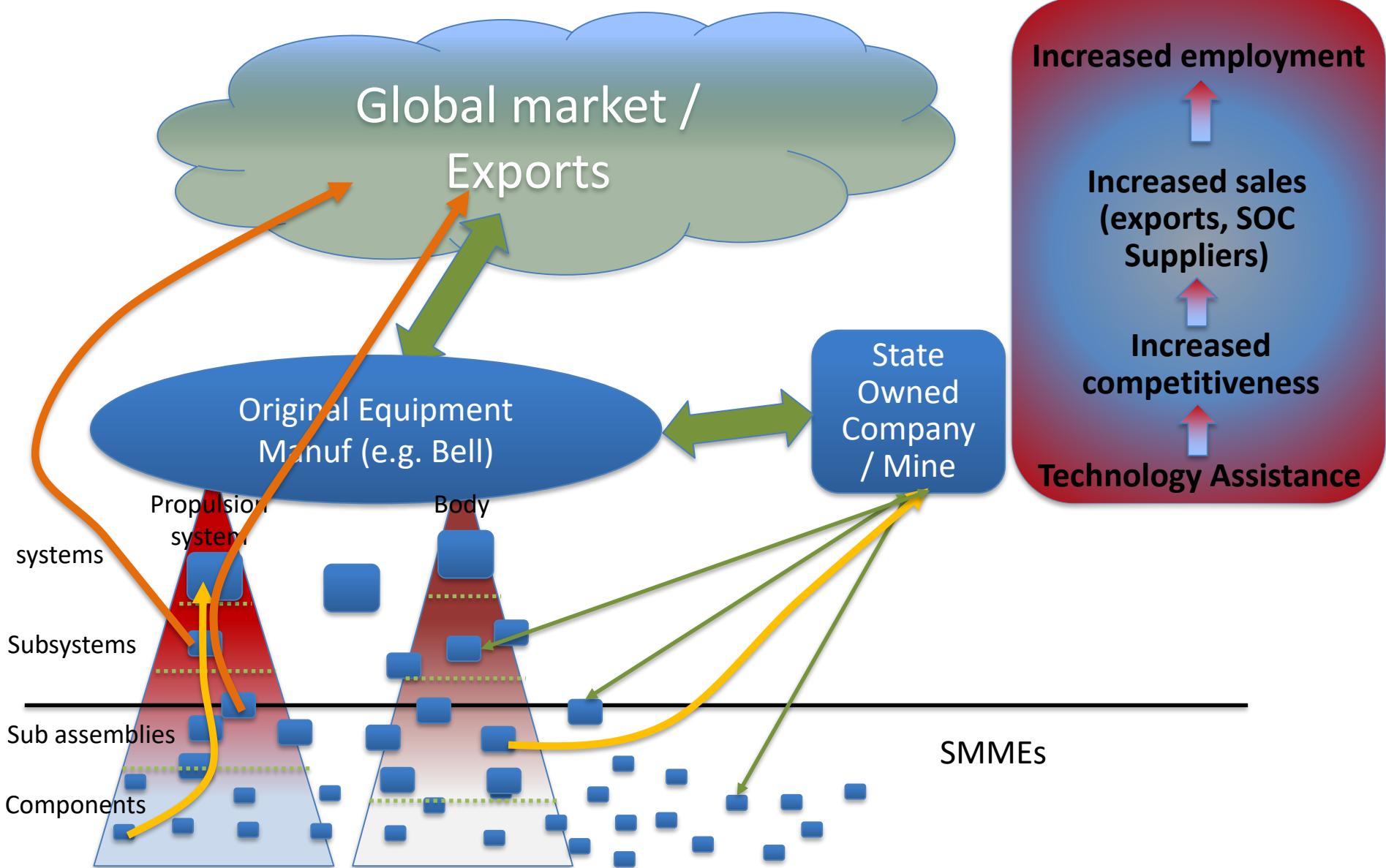
Renewable  
Energy

Oil & Gas

## 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