



MANDELA MINING PRECINCT  
MINDS FOR MINES

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## Mandela Mining Precinct

A programme of the Department of Science and Innovation and Minerals Council South Africa; co-hosted and managed by the CSIR and the Minerals Council South Africa.

### Expression of Interest (EOI)

For

### The Identification of Research Development and Innovation (RDI) Partners for the SAMERDI Programme

EOI No. EOI MMP 26 March 2026

**Date of Issue:** 10 March 2026

**Deadline of Submissions:** 27 March 2026 by 16:00 (Extended to 31 March 2026 by 16:00)

**Enquiries:** Enquiries@mandelaminingprecinct.org.za

# TECHNICAL INFORMATION

## INTRODUCTION

The Mandela Mining Precinct is pleased to announce an **Expression of Interest** (EOI) to identify additional Collaborative RDI Partners for the implementation of the South African Mining Extraction Research, Development & Innovation (SAMERDI) Programme for 2026. This call is extended to the research organisations and institutions that traditionally qualify for participation, and, as part of a strategic pilot, is now also extended to OEMs and private companies. Please note that while private entities and OEMs are eligible to be considered as collaborators, any research activities requiring formal ethics clearance must be conducted through recognized research-based organizations.

**If you are already an approved MMP research collaborator, you do not need to re-apply.**

Applicants are requested to familiarise themselves with the information provided in this EOI as well as in the SAMERDI Strategy (2015-2025), before preparing an application. The SAMERDI Strategy is available online at [https://mandelaminingprecinct.org.za/wp-content/uploads/2024/12/SAMERDI-Mining-Extraction-Strategy-for-South-Africa\\_unofficial-ref-doc.pdf](https://mandelaminingprecinct.org.za/wp-content/uploads/2024/12/SAMERDI-Mining-Extraction-Strategy-for-South-Africa_unofficial-ref-doc.pdf)

## BACKGROUND

The **Mandela Mining Precinct** (MMP) is jointly funded by the Department of Science, Technology and Innovation (DSTI) and the Minerals Council South Africa, to maximise the sustainable returns of South Africa's mineral wealth through collaborative research, development, innovation, and implementation of new mining technologies in a socially, environmentally, and financially sustainable manner that is rooted in the local community and national economy. It was established to assist with and coordinate the implementation of the South African Mining Extraction Research, Development & Innovation (SAMERDI) strategy.

The SAMERDI Strategy was adopted following the Mining Phakisa as a basis for the revitalisation of South Africa's mining R&D capability and capacity through **collaboration and support** from researchers, scientists, and engineers. The strategy provides a roadmap on how to **work collectively** towards technological solutions that will enhance health & safety, increase productivity, and reduce working costs to ultimately extend the life of mines and build the local mining supply chain.

The vision of the SAMERDI strategy is ***“to maximise the sustainable returns of South Africa’s mineral wealth through collaborative research, development, innovation & implementation of mining technologies in a socially, environmentally and financially sustainable manner that is rooted in the local community and national economy.”***

The overarching SAMERDI RDI implementation programme comprises the following programmes:

- **Longevity of Current Mines (LoCM)** – Designed to modernise and introduce new innovative solutions to the South African Mining Industry (SAMI) conventional-type mining with Best Practice resource extraction methodology from proven tested and assessed outcomes. The strategic intent is to develop concept to product implementation solutions for current operational mines.
- **Mechanised Mining Systems (MMS)** – Aims to optimise and introduce new automated mining innovative solutions to SAMI for mechanised-type mining with Best Practice resource extraction methodology from proven tested and assessed outcomes. The strategic intent is to enhance technology solution development, evaluation and implementation.

- **Successful Application of Technologies Centred Around People (SATCAP)** - Aims to understand the effects, impacts and challenges of mining modernisation on people in the minerals sector, and how people relate to each other and technology in mining modernisation. Furthermore, the programme lends support to the environmental, social, and governance (ESG) agenda towards enabling a balance between people, planet and profitability. More specifically the ‘social’ aspects are in focus. Modern technologies, automation, digitalisation have impact on people, thus making learning and development more crucial to the modernisation journey, with a jobs and skills mapping; and people centric solutions/applications, needing surfacing.
- **Real Time Information Management Systems (RTIMS)** - Focuses on improving how information is generated, combined, governed, secured, and used in real time across mining operations. Collaborators suited to RTIMS typically contribute capabilities in areas such as structured data management, operational insight generation, system or process integration, applied research related to sensing or instrumentation, operational digitalisation, or methods that strengthen human decision-making and operational responsiveness.
- **Advanced Orebody Knowledge (AOK)** – The programme is a forward-thinking initiative aimed at improving the safety, efficiency, and sustainability of mining operations. It’s vision is to establish a “Glass Rock” environment, where geological conditions ahead of the mining face are transparent, predictable, and well understood. By providing accurate insight into subsurface conditions, the programme enhances geological confidence, reduces operational risks, and supports optimal extraction with zero harm.
- **Test Sites** – Agreements with mining companies are being sought to make use of **commodity representative** underground site/s to use for testing and assessing prototypes/products, so that the sites are equipped with the relevant communication and Wi-Fi networking technologies to enable **effective independent testing and assessment** of latest developed prototypes/products at **Technology Readiness levels (TRL6 to TRL9)** to ensure effective implementation of mining technologies.

These programmes contribute (collectively and individually) to the following criteria of:

- Improving safety;
- Understanding skills needs, human readiness and change processes aligned to latest technologies;
- Increasing the competitiveness of the industry;
- Creating new industries; and
- Allowing for technology localisation.

The programmes operate **in a collaborative way**, utilizing the skills and expertise of a wide range of research partners that encompass universities, research institutions and other organisations with a research arm. **This EOI has a focus on broadening this pool of research and innovation partners specifically for the area(s) indicated in Annexure A.**

After the evaluation of the EOI submissions against the specified criteria, all EOI applicants will receive a letter notifying them of the application outcome of their submission. Successful applicants will be included in the MMP collaborators pool, to whom Requests for Proposals (RFPs) will be distributed in future for work that the MMP plans to undertake. These collaborators will be required to participate in collaborative briefing sessions and to form part of a successful RFP to be considered for such work.

The research conducted in each Programme is completed through projects that are undertaken collaboratively by teams of researchers who form part of the MMP potential collaborator pool. These projects /work packages are allocated to research collaboration partners based on the collaborative proposals submitted in response to a call for proposals (RFP) under each programme. The proposals are

evaluated by the Programme Managers (PM) based on the criteria specified and the proposal evaluation outcomes will be presented by the PM to the Technical Steering Committee (TSC) for final approval. The successful collaborators will then be approached to formally contract with the MMP through the research lead

Specific areas where we require additional or broader capacity from 2026 onward is captured in Annexure A.

- **Note 1:** This EOI is purely an opportunity to be considered as part of our **pool of potential collaborators and does not guarantee any party a contract**. Should funding be available, contracts will only be awarded to collaborative partners **from the approved pool**, who have submitted proposals in response to an RFP for each research programme annually, and who have been evaluated against the set criteria and approved by the programme's TSC.
- **Note 2:** Appointments and contracting will be done through either the Council for Scientific and Industrial Research ("CSIR") or Minerals Council South Africa ("Minerals Council") depending on the source of the project funding.
- **Note 3: Organisations that are already part of the collaborative pool of MMP must not re-apply. This EOI is to expand** the pool to include additional institutions and organisations that may be able to contribute relevant capabilities where there are gaps or additional depth or diversity is required.
- **Note 4: Collaborative projects** by their very nature, must clearly reflect **joint intellectual contribution and meaningful participation** from all parties. Proposals should indicate the **nature of each party's contribution**—whether expertise, facilities, personnel time, operational insight, or other resources of value.

## INVITATION FOR EXPRESSION OF INTEREST

Expressions of interest (EOI) are invited from suitably qualified institutions/organisations, based on the evaluation criteria below.

### EOI OBJECTIVE

The aim is to increase the number of Research Institutions, OEMs, or other companies for collaboration in the mining-related research and innovation projects. Only institutions/organisations with relevant capacity, expertise, experience, resources, and necessary facilities /equipment will be considered.

### EOI SPECIFICATION

All applications are to be submitted in the format specified in this document. Applicants are, however, welcome to submit additional / alternative information over and above the specified format should they feel this will add value. Providers must provide the information for the following criteria and provide sufficient proof thereof to enable the MMP team to make an informed decision:

- *Organisation's demonstrated relevant experience* – Number of years operating or conducting applied research or innovations in mining, mining-related sector, or technical domains with clear applicability to the mining industry.
- *Organisation's relevant skills, expertise, and broad capabilities*; Provide the size, nature and depth of the team comprising of at least a contracts/project manager with a minimum of 6 years' experience in

the mining or related technical discipline, as well as the relevant technical resources in the relevant field.

- *Organisation's record of accomplishment in relevant field:* The submitted examples need not relate exclusively to traditional mining research and innovation. They may reflect broader contributions to capability development, digital or operational innovation, applied experimentation, or cross-disciplinary integration.

**NOTE:** In order to be added to the MMP database, **your institution must be registered on the National Treasury Central Supplier Database (CSD)**. We urge all respondents to register on this system as soon as possible, so that the administration process and potential contracting can be completed timeously, should respondents be successful with their collaborative proposals. Registrations can be completed online at [www.csd.gov.za](http://www.csd.gov.za).

## ELIGIBILITY

Research collaborators from South African Universities and Science Councils, or other public or private research entities and equipment suppliers, working in relevant disciplines, are invited to submit an **Expression of Interest Application**. Principal Investigators (PI)/Lead Experts must be qualified to do the proposed research and should be experts in the subject matter referenced in the SAMERDI strategy and programmes.

The evaluation of technical requirements of the EOI will be based on the requirements listed in the table below:

| Requirement                                                                                                                                                                                  | Acceptance Criteria                                                                                                                                                                                                                                                                                                                                                                | Weight | Score | Weighted score<br>Score*weight |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|--------------------------------|
| Demonstrated relevant experience in the mining/applied mining/mining-related fields, or applicability to the mining industry (includes both human resource and digitally related resources). | >10 years mining/domain experience – 10 points.<br><br>8-10 years – 8 points<br><br>6-7 yrs.- 6 points<br><br>1-5 yrs. – 4 points                                                                                                                                                                                                                                                  | 20%    |       |                                |
| Relevant skills, expertise, and broad capabilities (latter also includes facilities and equipment)                                                                                           | Full team clearly has the qualifications, skills, and capabilities aligned with MMP's mining, research, and solutions requirements, including strong engineering skills.<br><br>81-100% fit - 10 points<br><br>50-80% fit with requirements- 8 points.<br><br>Tenuous to 49% partial fit with requirements- 5 points<br><br>Tenuous fit- 3 points                                  | 40%    |       |                                |
| Record of accomplishment in relevant field: provide a list of previous projects or products developed, or innovation initiatives in the Mining or mining-related/applied or                  | References and/or proof of relevant research expertise by providing a list of at least 5 similar projects in a similar field with a minimum of 5 contactable references, OR a minimum of 5 letters from clients (on their letterheads) clearly stating that the organisation has performed relevant work of this nature. - 10 points.<br><br>3-4 References and/or proof- 8 points | 20%    |       |                                |

| Requirement                                                                                                                       | Acceptance Criteria                                                                                                                                                                                                                                                                                                                                                      | Weight      | Score     | Weighted score<br>Score*weight |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------|--------------------------------|
| applicability to the mining industry.                                                                                             | < 2-3 References /proof – 5 points<br><2 references – 0 points                                                                                                                                                                                                                                                                                                           |             |           |                                |
| Indication of the contribution the collaborator believes they can add to the project/programmes and its perceived monetary value. | Contribution /value substantive and considered to be a significant collaborative contribution (10 points)<br><br>Contribution /value sufficiently substantive to qualify as collaborative research according to MMP criteria (5 points)<br><br>Contribution /value not considered substantive or not considered as qualifying as a collaborative contribution (0 points) | 20%         |           |                                |
| <b>TOTAL</b>                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                          | <b>100%</b> | <b>30</b> | <b>10 (max)</b>                |

Expressions of interest with functionality / technical points of less than the pre-determined minimum overall weighted percentage of **70 %** (i.e., 7/10) **and/or** less than **50 %** on any of the individual criteria will not be considered i.e., 5/10 per individual category).

## TERMS AND CONDITIONS

### PROPOSAL SUBMISSION

To be eligible for consideration, applications must be submitted in MS Word or PDF format, and must be submitted via email to [enquiries@mandelaminigprecinct.org.za](mailto:enquiries@mandelaminigprecinct.org.za) no later than the closing date, between the business hours of 08h00 and 16h30. Late submissions will not be considered, under any circumstances.

### CONTRIBUTION BY COLLABORATOR/PARTNER

Given that the projects and programmes **are collaborative in nature**, and the agreements that the MMP will enter into with lead Collaborators will be collaboration agreements, it will be important for potential collaborators to clearly reflect what their collaborative contribution will be upfront. There needs to be clear evidence of **joint intellectual contribution and meaningful participation** from all parties in a collaboration agreement. The final proposals should clearly indicate the **nature of each party's contribution**—whether it is providing free expertise, facilities, workshops, personnel time, or other resources of value. The contributions need to be significant enough to qualify as a collaborative agreement. Whilst it is not clear at this point what the exact nature of such a contribution will be, potential collaborators need to identify potential contributions that they may be able to make.

### RESERVATIONS

The CSIR and/ or the Minerals Council South Africa expressly reserves the following rights:

- To reject all or any submissions
- To waive any or all irregularities in the submissions submitted
- To retain the right not to select any application/s even if all the requirements are met.

### CONTRACT NEGOTIATIONS

The successful lead organisation of the collaborative proposal will be required to enter into a written Agreement with either the CSIR, who hosts the publicly funded projects of the Mandela Mining Precinct on behalf of the DSTI, or the Minerals Council, where projects are funded by the Minerals Council.

#### CLOSING DATE

Applications must be submitted electronically via email to [enquiries@mandelaminingprecinct.org.za](mailto:enquiries@mandelaminingprecinct.org.za). The deadline for the submission of the EOI applications is **27 March 2026**.

All applicants will be notified about the outcome of their applications by mid- **April 2026** to allow them to participate in the bids and proposal submissions associated with the contracts for 2026/27 financial year.

#### VALIDITY

All applications will be regarded as valid for 120 days from the opening date, whereafter the CSIR/ Minerals Council may request an updated application, should this become necessary.

#### DISCLAIMER

This EOI is an **expression of interest only** to participate in future research calls by the MMP, and **does not constitute an offer/promise a contract, or provide a commitment to such**. It simply allows eligibility to respond to future RFPs from the MMP.

The CSIR and/or the Minerals Council make(s) no representation, warranty, assurance, guarantee, or endorsements to applicants concerning the EOI, whether regarding its accuracy, completeness or otherwise and the CSIR and/or Minerals Council shall have no liability towards the applicant or any other party in connection therewith.

## TEMPLATE FOR EOI APPLICATION

(Minimum requirement)

|                                                                                                                               |  |       |  |        |  |      |  |     |  |            |  |
|-------------------------------------------------------------------------------------------------------------------------------|--|-------|--|--------|--|------|--|-----|--|------------|--|
| <b>Institution/company</b>                                                                                                    |  |       |  |        |  |      |  |     |  |            |  |
|                                                                                                                               |  |       |  |        |  |      |  |     |  |            |  |
| <b>Contact information</b>                                                                                                    |  |       |  |        |  |      |  |     |  |            |  |
| Name:<br>Contact number:<br>Email Address:                                                                                    |  |       |  |        |  |      |  |     |  |            |  |
| <b>Statement of capabilities</b>                                                                                              |  |       |  |        |  |      |  |     |  |            |  |
| Broad <b>statement of capabilities</b> that will enable the panel to determine level of fit with SAMERDI strategy/programmes. |  |       |  |        |  |      |  |     |  |            |  |
|                                                                                                                               |  |       |  |        |  |      |  |     |  |            |  |
| <b>Target SAMERDI programme (s) - Mark one or many</b>                                                                        |  |       |  |        |  |      |  |     |  |            |  |
| AOK                                                                                                                           |  | RTIMS |  | SATCAP |  | LoCM |  | MMS |  | Test sites |  |
| Confirmation of <b>registration on National Treasury's Central Supplier Database.</b>                                         |  |       |  |        |  |      |  |     |  |            |  |

- Comprehensive information on **how organisation meets stated requirements** in Table below.

### TECHNICAL SPECIFICATIONS

| Requirement                                                                                                                                                                                                       | Information provided to substantiate requirement |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Demonstrated relevant experience in the mining/applied mining/mining-related fields, or applicability to the mining industry (includes both human resource and digitally related resources).                      |                                                  |
| Relevant skills, expertise, and broad capabilities (latter also includes facilities and equipment)                                                                                                                |                                                  |
| Record of accomplishment in relevant field: provide a list of previous projects or products developed, or innovation initiatives in the Mining or mining-related/applied or applicability to the mining industry. |                                                  |



| Requirement                                                                           | Information provided to substantiate requirement |
|---------------------------------------------------------------------------------------|--------------------------------------------------|
| Submit any other additional / alternative information that you believe to be relevant |                                                  |

#### CONTRIBUTION BY COLLABORATOR/PARTNER

**Indication of the contribution** the research collaborator/partner believes they can add to the project and its **perceived monetary value**.

| Description of contribution | Value of such contribution (R) |
|-----------------------------|--------------------------------|
|                             |                                |
|                             |                                |

## **ANNEXURE A: SPECIFIC AREAS FOR 2026/27 WHEREIN WE SEEK ADDITIONAL COLLABORATORS AND RDI CAPACITY.**

THE AREAS OF FOCUS ARE DETAILED PER PROGRAMME AS FOLLOWS:

### **REAL TIME INFORMATION SYSTEMS (RTIMS)**

RTIMS work packages draw from a broad set of capability areas related to information flow, operational awareness, systems integration, decision-support enhancement, and socio-technical alignment. Organisations may map their strengths to any capability area that supports improved mining system performance, information quality, operational coordination, or human-technology integration.

MMP seeks additional collaborators to strengthen worker-centric technology research, global technology benchmarking, IT/OT convergence analysis, skills mapping, and rapid concept validation capabilities.

#### **Worker-Centric Technology Research**

MMP seeks collaborators who can respond rapidly to labour-driven concerns and research questions. Areas include:

- Wearable safety technologies (environmental monitoring, fatigue, worker visibility, location awareness).
- Robotics and automation impact on workers, including risk, acceptance, and role changes.
- Digitalisation and human-system interaction focusing on adoption barriers, trust, usability, and safety enhancements.
- Health, ergonomics, and human-factors assessments linked to modern technology rollouts.

#### **Emerging Global Mining Technologies – International Benchmarking & Evaluation**

Identifying, assessing, and developing solutions for practical IT/OT-integrated technologies that can enhance safety, visibility, and operational efficiency in South African mines. The Mandela Mining Precinct seeks additional collaborators and RDI partners in the following targeted areas:

- Underground and surface sensing, telemetry, and reliability engineering (e.g., power-quality monitoring, environmental sensing, equipment condition monitoring).
- Cyber-physical security and industrial resilience which encompasses the protection of critical mining infrastructure against cyber threats, secure data governance for IIoT devices, and the implementation of zero-trust architectures for integrated IT/OT environments.
- High-reliability industrial connectivity and digital infrastructure (e.g., private 5G/WiFi-6, OT-secure networks, resilient backhaul solutions).
- AI-enabled operational safety technologies (e.g., visual analytics, behavioural safety systems, fatigue detection, vehicle intelligence).
- Robotics and autonomous inspection platforms suited to hazardous or inaccessible mining environments.

#### **IT/OT Convergence & Digital Mine Integration**

MMP seeks partners to continue deepening understanding of convergence technologies. Areas include:

- Evaluating or establishing global IT/OT convergence architectures and protocols.
- Identifying best-fit solutions for underground communications, sensing, and real-time data integration.

- Assessing the readiness of SA mines to adopt advanced digital platforms demonstrated internationally.

### **Future-Skills Mapping Linked to MMP Technologies**

MMP seeks collaborators to map workforce capabilities required for modern mining systems. Areas include:

- Identifying skills required for emerging technologies across AOK, MMS, LoCM, SATCAP, RTIMS.
- Extending the Enterprise Architecture model to include skill taxonomies linked to technologies.
- Integrating skills data into KnowMore Portal for workforce planning and capability development.

### **Technology Lifecycle & Adoption Support Studies**

MMP seeks partners who can assist with adoption-focused analysis. Areas include:

- Identifying factors that accelerate or block technology adoption in South African mines.
- Supporting mines with technology trials, pilot planning, and capability assessments.
- Producing guidelines for trial, test, evaluate, adopt processes for RTIMS-aligned technologies.

### **Rapid Concept Validation & Evidence-Building Capacity**

MMP requires collaborators who can deliver “quick turnaround” research and testing. Areas include:

- Small proof-of-concept studies for union-raised topics.
- Prototype testing for wearables, safety systems, automation tools, or digital platforms
- Fast literature reviews, industry scans, and short trials.

## **LONGEVITY OF CURRENT MINES (LoCM)**

The 2026/27 LOCM scope aims to introduce the development of ZERO HARM innovation enablers, by setting up effective and standardised technology product testing and assessment processes, which include representative test site/s, independent assessment governance structure, technology innovation mine ecosystem and information sharing platforms.

The phased approach work is structured in four work packages as follows:

- **TRL7 Product validation and certification: Accredited and assessment independent validation capabilities is required for mining products at TRL7** assessment level that gives companies credible, operationally tested evidence of performance. It resolves inconsistent evaluation practices by defining uniform, measurable criteria that allow fair comparison across sites.
- **Product development process (TRL6 to TRL9): Knowledgeable engineering governance principals and capabilities** to establish a structured TRL6–TRL9 governance processes to standardise mining technology products engineering design, development, testing and assessing processes from concept to adoption through effective stage-gated validation for South African mining.
- **Validating Optimised Drilling, Charging and Blasting Management Systems:** This is a novel management system solution in development to improve blasting safety by introducing digitally

measuring devices to measure quality of drilling, charging and blasting activities. **Knowledgeable experience and capabilities are required** to align existing planning systems (e.g.. Deswik, MineRP, Datamine, etc) to the drill, charge and blast management system to create drill, charge and blast instruction notes to the Miners, and compare actual activity measured outcome to the instruction notes.

- **Standardised templates and processes for product testing: Knowledgeable and capabilities is required** to develop and introduce standardised templates and processes that ensure comparable, repeatable test and assessment results, supported by uniform assessment documentation processes.

## MECHANISED MINING SYSTEMS (MMS)

In 2026/7, the Mechanised Mining Systems (MMS) programme is focused on advancing mechanisation initiatives and improving operational efficiency across mining operations. The scope of work encompasses the development of ZERO HARM innovation enablers, focussing on continued development, testing, and integration of mechanised mining technologies. The work further pursues resource extraction optimisation, with the verification of the novel multi-reef pillar design philosophy. It is aimed to enhance productivity, safety, and sustainability by setting up effective and standardised technology product verification.

The phased approach work is structured in four work packages as follows:

- **Validating assessment processes for products with autonomous mining level 2 capabilities at TRL7 level: Accredited Independent Assessment experience and capabilities are required** to validate mining Level 2 autonomous systems under real operational conditions (TRL7), establishing standardised assessment processes for consistent benchmarking, and building industry confidence through independent validation; and closes knowledge gaps by guiding mines on trialling, assessing, and implementing autonomous technologies, strengthening internal capability for future adoption.
- **Technology Integration Assessment:** The project addresses inefficiencies in South African mining caused by fragmented technology deployment by providing a structured framework for multi-product and system integration. **Knowledgeable and capabilities are required** for the establishment of standardised assessment, monitoring, and control processes to ensure compatibility and performance across systems; aligning technologies with digital management solutions, enhancing operational oversight and the extraction of actionable insights; and supports maximised efficiency, safety, and productivity through effective integration. Overall, the deliverables improve technology integration, standardisation, and digital operational capability, enabling more coordinated, efficient, and high-performing mining operations.

## SUCCESSFUL APPLICATION OF TECHNOLOGIES CENTRED AROUND PEOPLE (SATCAP)

- **Future ready capabilities:**  
‘Fit for purpose’ capabilities are needed to support the industry’s evolving RDI needs/ future trends and new technologies adoption.

**A Mapping/Platform** for Jobs and Skills needs/ shifts/ changes for new technologies (RTIMS/MMS integration) may be initiated from 2027 onwards. MMS is identifying new technologies which is impacting skills and jobs. A mapping (RTIMS) of needs /requisites for jobs (new jobs, job changes) and skills (upskilling, reskilling, new skills, green skills) to support new technologies adoption is needed.

## ADVANCED OREBODY KNOWLEDGE (AOK)

A persistent challenge in mining is the ability to directly interrogate the rock mass and obtain reliable grade-related information at appropriate spatial and temporal scales. The AOK programme is therefore seeking innovative **in-situ approaches** that enable rapid, spatially resolved characterisation of mineralogical or geochemical properties, either as point measurements or continuous scans, and that can be deployed in operational mining environments.

Areas of interest include, but are not limited to:

- In-situ or near-real-time techniques capable of interrogating elemental or mineralogical composition
- Optical, spectroscopic, or energy-based methods that enable rapid, non-destructive or minimally invasive analysis
- Technologies deployable in boreholes, stopes, development ends, or integrated into drilling or production activities
- Continuous or high-density spatial scanning approaches that improve grade continuity and confidence
- Data-driven or AI-enabled interpretation of in-situ measurements
- Solutions that reduce uncertainty, dilution, and ore loss while improving safety and productivity

Proposed concepts should demonstrate relevance to South African mining conditions and a clear value proposition for improving grade confidence and decision-making. Collaborative, multi-disciplinary proposals are encouraged.