



MANDELA MINING PRECINCT
MINDS FOR MINES

Guideline:

**MODERN TRAINING FOR A MODERN MINING
WORKFORCE (SKILLS)**

Supervisory Leadership Development

SATCAP 2021

About the Mandela Mining Precinct

The Mandela Mining Precinct is a Public-Private Partnership between the Department of Science and Innovation and the Minerals Council South Africa. The Precinct is jointly hosted by the Council for Scientific and Industrial Research and the Minerals Council. The Mandela Mining Precinct is an initiative aimed at revitalising mining research, development and Innovation in South Africa to ensure the sustainability of the industry. This is achieved through the South African Mining Extraction, Research, Development and Innovation (SAMERDI) strategy.

The strategy comprises six research programmes:

1. Longevity of Current Mining;
2. Mechanised Mining Systems;
3. Advanced Orebody Knowledge;
4. Real-Time Information Management Systems;
5. Successful Application of Technologies Centred Around People; and
6. Test Mine.

This guideline was developed under the Successful Application of Technologies Centred Around People (SATCAP) research programme. The programme is aimed at understanding the effects, impacts and challenges of mining modernisation on people in the minerals sector.

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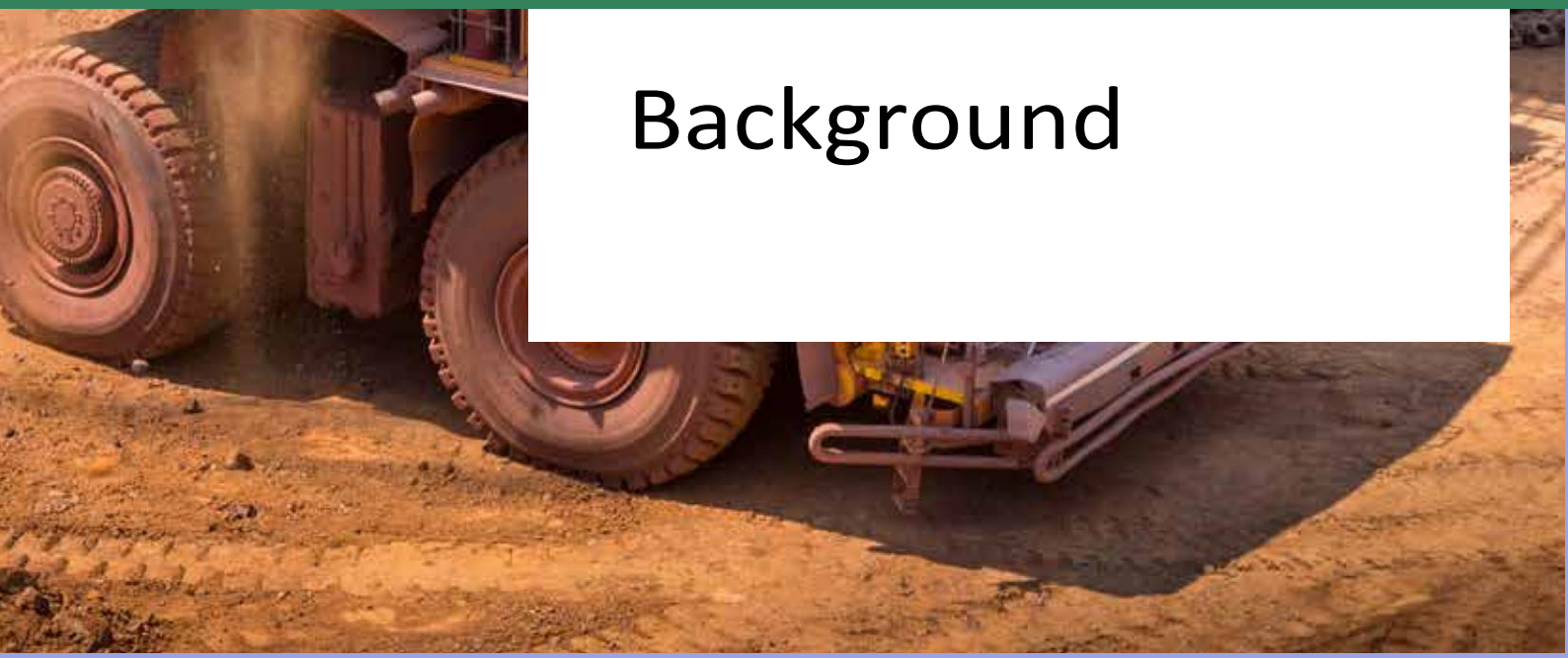
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CHAPTER 1

Background



The Mandela Mining Precinct has commissioned ‘people-related’ research work through the Successful Application of Technology Centred Around People (SATCAP) research programme.

For 2021-2022, the Successful Application of Technology Centred Around People (SATCAP) research programme had focus on skills needs for a modern workforce. The research work was related to immersive learning experiences to support modern training for modern mining. The studies have considered engaging learning contexts that are virtually and physically interactive, allowing for learners to be immersed in the learning experience.

The aim of the project, in focus, specifically looked into supporting the development of supervisors in mining - towards leading and driving mining modernisation.

The project was funded by the Department of Science and Innovation (DSI), as part of the Successful Application of Technology Centred Around People (SATCAP) programme, in support of the South African Mining Extraction Research, Development and Innovation (SAMERDI) strategy. The project was conducted by the Council for Scientific and Industrial Research (CSIR), in collaboration with WinWin International and Louis Allen South Africa. The project comprised Work Package 2.1 “Skills” for the 2021 financial year.

1.1 AIM AND SUMMARY OF THE PROJECT

The **aim** of the project was to support the development of supervisors in mining modernisation through an exemplar foundational supervisory leadership development module towards leading and driving mining modernisation.

The study has considered an existing supervisory leadership development programme, which is used in industry by major mining companies. The modules were reviewed and found to be applicable for supervisory leadership development. The study identified potential gaps in the existing modules and opportunities to enhance the modules through modernising the training methodology, through potential digitalisation of modules, thereby allowing for self- learning opportunity and refresher of the modules. A mining modernisation component was also included.

Two digitised modules were developed for industry use, to demonstrate use of a more modern training approach. This also supports a blended training approach. The two modules may be considered for use as stand-alone modules or as complementary to the existing programme. The two modules were enhanced with additional content where there were gaps evident in the existing programme. The enhancements were made to ensure the content supports supervisors’ development to lead and drive modernisation. They provide an introduction and the basic principles for supervisors to lead and drive mining modernisation.

1.2 SUMMARY OF RESEARCH FINDINGS

1.2.1 DIGITAL TRAINING

It was evident from the study that when it comes to digital training, a ‘one size fits all’ approach cannot be adopted. Mines are at varying maturity stages of modernisation. Findings identified were:

- Mines are using digital training methods to some extent for supervisory training;

- Mines cannot consider an ‘one-size fits all’ approach regarding digital training, as their contexts differ, and this suggests that a blended approach to training is preferred by mines;
- Classroom learning, on-job and on-shift learning remains important;
- Digital learning may be used meaningfully for refresher training when back from leave, or for remote and self-learning more readily;
- Factors like literacy levels, ageing or a younger workforce, pitch and level of training needs consideration in terms of the approach around digital training;
- Mines have infrastructure differences therefore Wi-Fi and other infrastructure needs for digital training will need the specific mine’s consideration;
- Financial obligations for digital training needs consideration by mines. Licensing costs etc. will have an impact;
- Digital training may not always allow for physical factors to be taken into account, therefore digital training should be complemented with other training methods; and
- A blended learning approach is preferred by mines and may be used by mines. Blended learning is a combination of offline (face-to-face, traditional learning) and online learning in a way that one complements the other.

1.2.2 EXEMPLAR TRAINING MODULES

Two training modules, as developed in collaboration with an industry preferred supplier, are shown below. The training session commences with key reflective questions around mining modernisation and the role of the supervisor in leading and driving mining modernisation.

Module 1 (‘Your role in modernisation’)

Section 1	Section 2	Section 3	Section 4
The concept of leadership	Becoming an effective leader	Self-awareness: key to effective leadership	The importance of effective leadership
• The definition of leadership	• A leader’s role in a team	• The importance of self-awareness	• Mining modernisation – a case for change
• Moving from Executor to Enabler	• Team development stages	• How you view others	• Supervisors as a driver for change
• A leader’s sphere of influence	• Leadership behaviours	• The importance of diversity and inclusion	-
• Effective leadership	• How we develop into effective leaders	-	-

Module 2 (‘A system’s approach’)

Section 1	Section 2
Systems approach	The LA management system
• Systems Thinking	• The Needs, Results and Work Model
• Input-Throughput-Output Process	• Understanding Stakeholder Needs
-	• Classification of Results
-	• Classification of Work
-	• The Management Gap
-	• The Management Wheel
-	• Applying the Management System

Complementary **training slides** were developed, as well as a **Facilitator Guide**, as well as the **Learner Guide**.

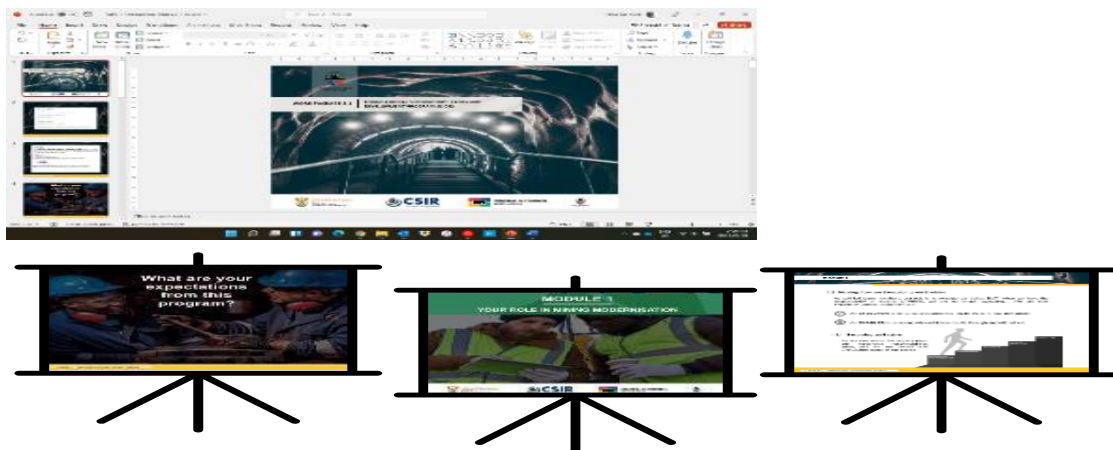


Figure i: Example of training slides

The Facilitator Guide assists with the preparation and facilitation of the program. It includes additional content, explanations, and timing guidelines to help the facilitator during the program (Figure ii).

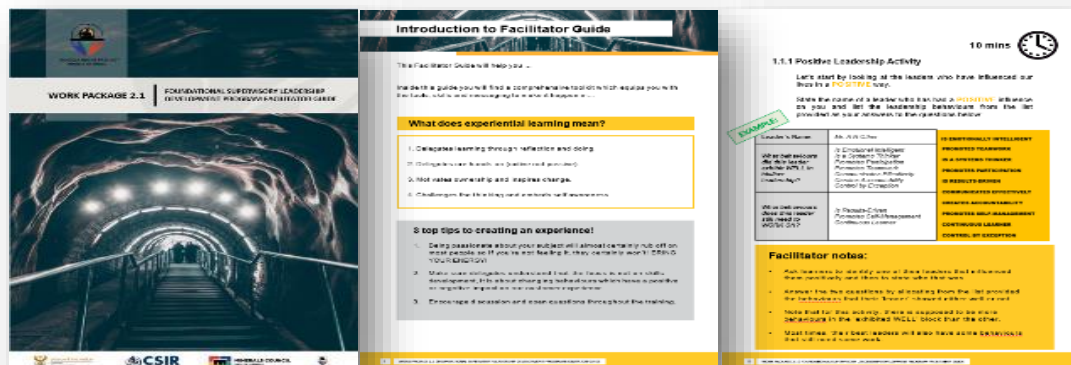


Figure ii: Example of facilitator guide content

A **training video** is also availed.



Figure iii: Screenshot from training videos

1.2.3 REVIEW OF AN EXISTING SUPERVISORY LEADERSHIP DEVELOPMENT PROGRAMME

A supplier supervisory leadership development solution, as is currently used by selected Au and PGM mines, was reviewed and evaluated.

The content forms the foundation of supervisory leadership development and provides a framework for understanding the core principles, concepts, techniques, guidelines, and vocabulary that all supervisors require. The programme is internationally recognised, Sector Education and Training Authority (SETA) accredited and has been delivered at various mines (including Au and PGM).

The review advised that although the solution being used proves effective in content, it could be enhanced with aspects of digitalisation so as to offer a more modern mode of training. Such an option may allow for self-learning and support refresher training. The duration for classroom learning may pose an issue for mines, as supervisors may have to spend many days in training rather than focussing on mining as the core business. A digital option may support self-learning or refresher training and may support reduced training durations in the classroom.

It was further uncovered that retention of learning may be minimised once the classroom training ends, implying that application at the workplace may not be implemented as expected. Use of a digital platform allows for more easy access to content so that concepts learned may be retrieved more readily back at the shaft.

It was evident from the review that some key modules were missing to support leading and driving modernisation, as the focus of current modules leans heavily on planning, organising, leading and controlling. The modules needed to be supplemented, and hence the study devised the design of two additional modules to support supervisors' development, to lead and drive mining modernisation.

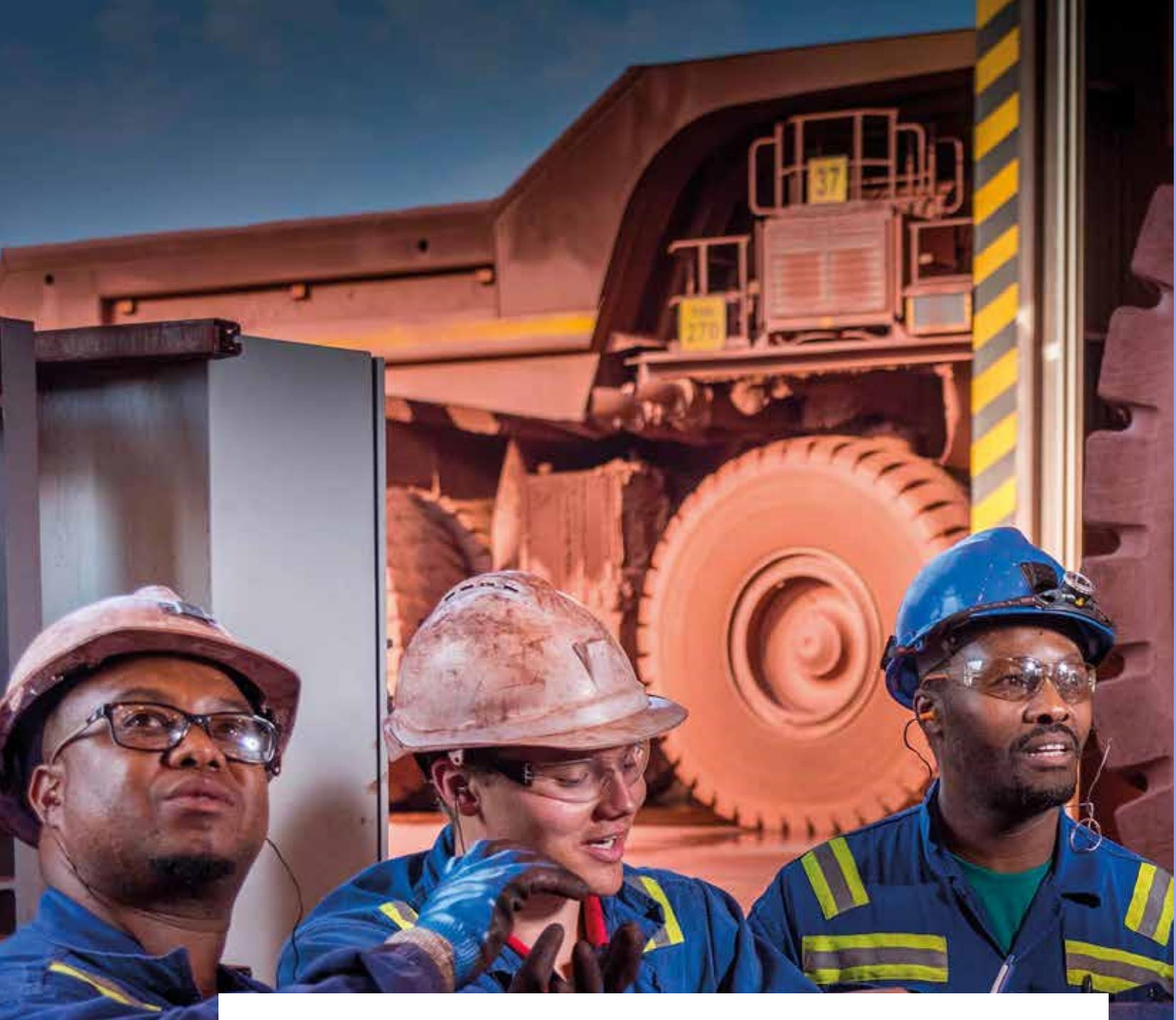
1.2.4 VALUE AND TRANSFER TO INDUSTRY

SATCAP has provided 'transfer to industry' training on the exemplar modules developed.

A train-the-trainer approach was used so that companies may train their trainers, who may transfer training to their supervisors. This approach allows for sustainability of in-house training. Mines also had the option to nominate supervisors to attend the training. Attendees were trained on a basic foundational supervisors' programme, which provided for the two modules-share.

A mining modernisation component was included. This will allow for supervisors to lead and drive modernisation with their teams... and further allows for an inclusive, people centred approach.

The two modules may be delivered, as optional, via digital platforms, for e.g., via a phone or laptop, for self-paced learning... with an option of delivery of a modern programme with modern training methodology ... rather than classroom-based learning. Mines may choose to do classroom-based training on the modules or allow supervisors to do self-learning, at their own pace, in their own time.



CHAPTER 2

Recommended Training Guideline
for Supervisors' Leadership
Development
(Two Foundational Modules)

2. TRAINING GUIDELINE

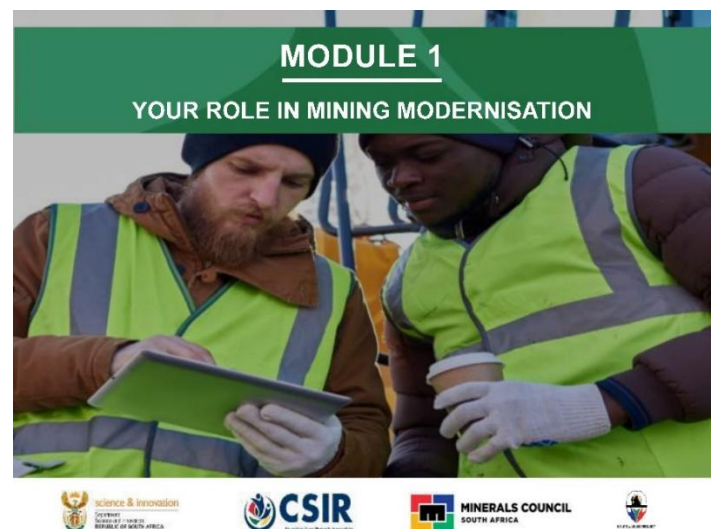
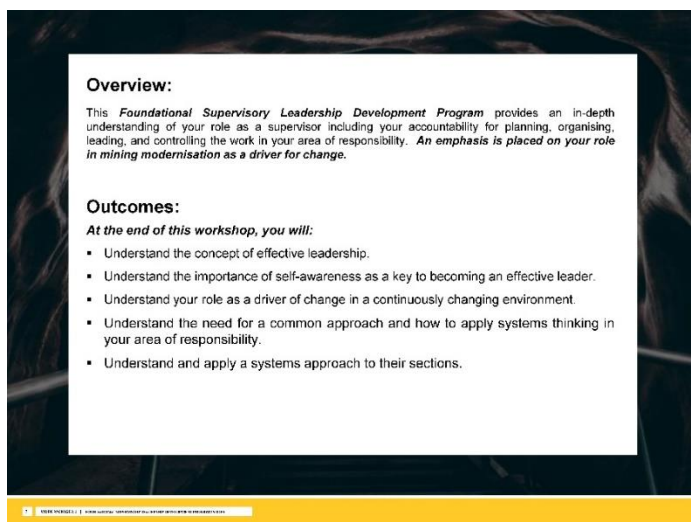
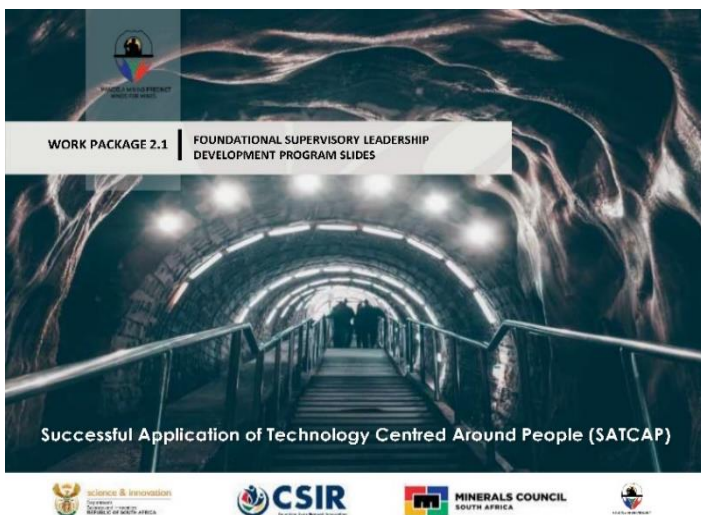
2.1 TRAINING SLIDES FOR USE ON MINE

The training guideline recommended for supervisor leadership development is provided through 2 foundational modules.

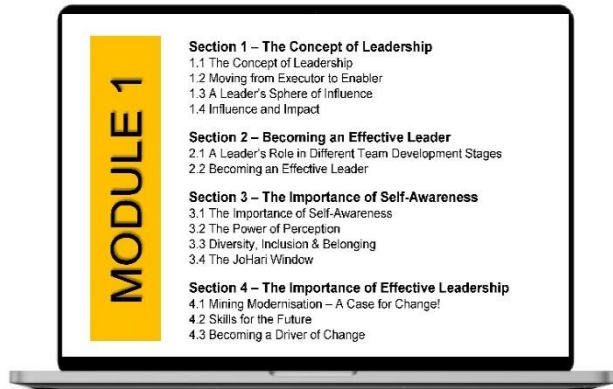
The recommended training guideline includes training slides, a training video, facilitator guide and learner guide. For effective training, the slides should be used together with the facilitator and learner guide. The video may also be used to enhance the learning experience or as a self-learning tool.

To note that the exemplary training modules, facilitator and learner guide are to be accessed via the Mandela Mining Precinct's website or the Precinct's social media platform. Aspects/ sample of the training slide deck is captured below.

Sample from the training slide deck



Module 1



1.1 The Concept of Leadership

M1S1 – The Concept of Leadership

1.1 The Concept of Leadership

A leader is someone who...
can **influence** the people around him/her
to **work together**
to **achieve a common goal**.

This module will provide you with the foundation to grow into your role and become an enabler who works through others.

BETTER LEADERS = BETTER RESULTS

1.1.4 Influential Leaders

Module 1



1.1.4 Influential Leaders

M1S1 – The Concept of Leadership

1.1.4 Influential Leaders



Effective supervisory leaders are *doing a particular kind of work* and *doing it in a particular way*.

A supervisor is a special kind of leader – one who, in addition of being able to influence people (**Leading**), has mastered the skills of **Planning**, **Organising**, and **Controlling** the efforts of others so that they can all work together to achieve common objectives.

1.1.4 Influential Leaders

M1S1 – The Concept of Leadership

1.1.4 Influential Leaders



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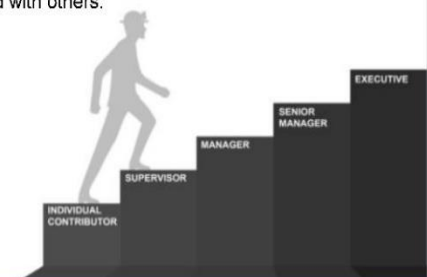
1.1.4 Influential Leaders

M1S1 – The Concept of Leadership

1.2 Moving from an Executor to an Enabler

⚙️ An **EXECUTOR** is someone who achieves results through their own efforts.

⚙️ An **ENABLER** is someone who achieves results through and with others.



1.2 Moving from an Executor to an Enabler

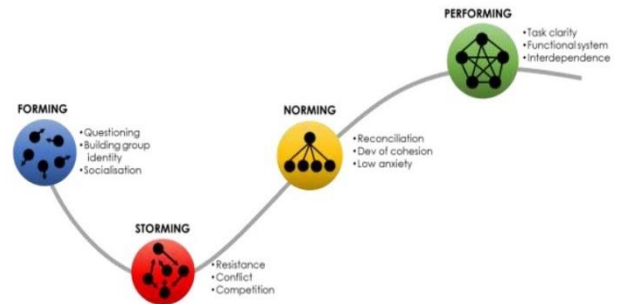
1.2.2 Ten Critical Behaviours of a Mature and Effective Leader

Effective Leaders...

- I. Are Emotionally Intelligent
- II. Promote Teamwork
- III. Apply Systems Thinking
- IV. Promote Participation
- V. Are Results Driven
- VI. Communicate Effectively
- VII. Organise in terms of Work and Results
- VIII. Create Accountability
- IX. Monitor Performance by Exception
- X. Continuously Improve and Lead Change

2.1 A Leader's Role in different Team Development Stages

2.1.1 The Different Stages of Team Development



1.4 Influence and Impact

Influence is our ability to make a positive impact on people's actions, decisions and points of view.

We automatically seek out **influential colleagues** to follow and to mirror their behaviour.

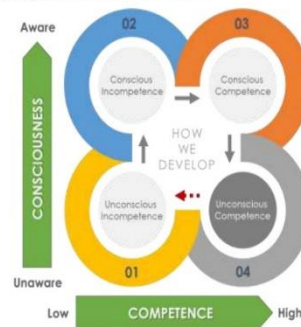
Others determine **your** level of influence based on the **impact** they see you making and not your status or job title.

Remember to always make an impact!

YOU CAN ACHIEVE RESULTS THROUGH AND WITH OTHER PEOPLE. SO... BE SOMEONE WHO PEOPLE WANT TO FOLLOW.

2.2 Becoming an Effective Leader

2.2.1 Developing into Effective Leaders



3.1 Why is Self-Awareness so Important

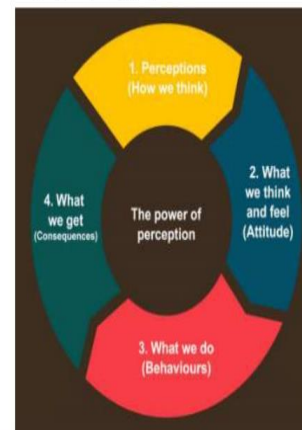
**SELF-AWARENESS: THE KEY TO EFFECTIVE LEADERSHIP**

"SELF-AWARENESS IS THE ABILITY TO TAKE AN HONEST LOOK AT YOUR LIFE WITHOUT ANY ATTACHMENT TO IT BEING RIGHT OR WRONG, GOOD OR BAD."

DEBBIE FORD | AUTHOR, COACH, LECTURER

If you want to become the best leader that you can be, you must have a deep understanding of who you are. **If you know better, you do better.**

3.2 The Power of Perception



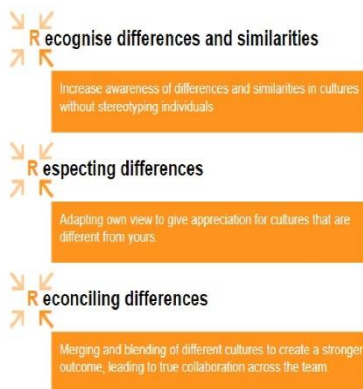
3.2.1 The Consequences of Our Perceptions



3.3 Diversity, Inclusion & Belonging



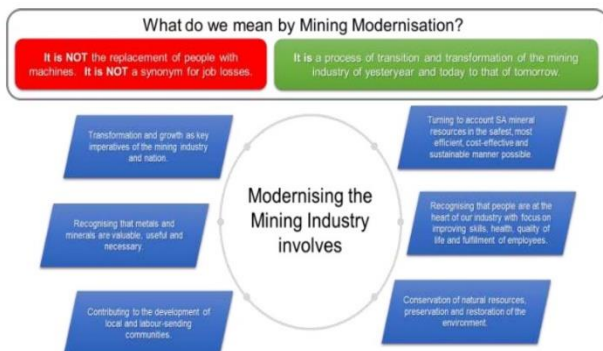
3.3.2 The 3 R's towards Inclusion



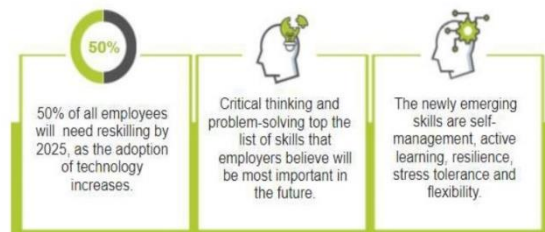
3.4 The JoHari Window



4.1 Mining Modernisation: A Case for Change



4.2 Skills for the Future



4.2.1 Top Skills Required in 2025



MODULE 2

A SYSTEM'S APPROACH

Module 2

MODULE 2

Section 1 – Applying a Systems Approach

- 1.1 Systems Thinking
- 1.2 Aligning to the Vision, Mission & Strategy
- 1.3 Input-Throughput-Output Process

Section 2 – The Louis Allen Management System

- 2.1 The Needs, Results and Work Model
- 2.2 Understanding Stakeholder Needs
- 2.3 Classification of Results
- 2.4 Classification of Work
- 2.5 The Management Gap
- 2.6 The Management Work Wheel
- 2.7 Applying the Management System

M2S1 – Applying a Systems Approach

1.1 Systems Thinking

What is a System?

A system is a set of interrelated elements that functions as a whole.

Examples of systems:

A watch/clock The human body A car's engine



M2S1 – Applying a Systems Approach

A system's approach to management makes sense because:

- Placing concepts into a systematic relationship makes them easier to understand.
- Systems Thinking makes it easier to see not only the whole, but all the pieces and how they are related to one another.
- Leaders have to see a context for change or create one. If changes are needed, a systems perspective gives a broader and clearer context within which to understand the What, Where, When, Who and How.
- Systematic approach are more likely to succeed because they take into consideration both the big picture and the detail of the situation as well as considering the interconnections amongst the different elements.

Module 2

Because of rapid and continuous change, there is **a need for a common management approach** that looks at management as a system, and not a role.

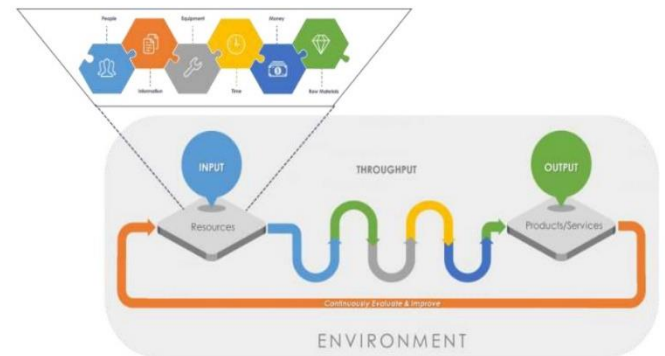
A management system is made up of common practices linked up and down and laterally throughout the organisation. These practices include fundamental and universal management practices such as having:

- A vision of what the organisation can become.
- Values that drive desired behaviours.
- A mission defined, relevant and aligned to the vision.
- Actions linked to real external needs.
- Meaningful metrics that measure both goal achievement and the quality of work.

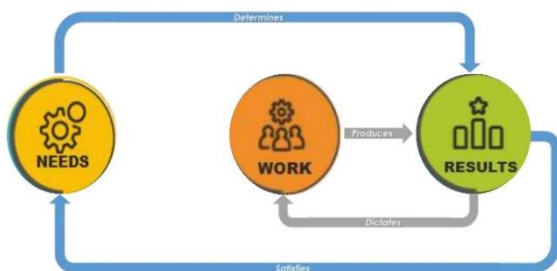
1.2 Aligning to the Vision, Mission & Strategy



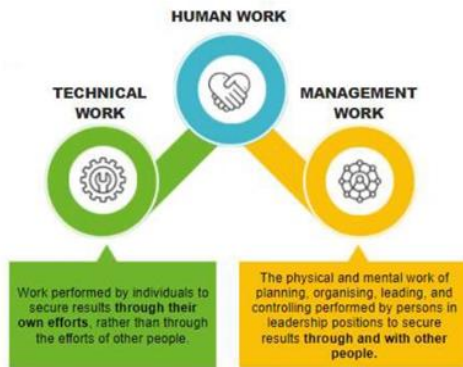
1.3 Input-Throughput-Output Process



2.1 Need, Results & Work Model



2.4 Classification of Work



M2S2 – The Louis Allen Management System



M2S2 – The Louis Allen Management System

2.2 Understanding Stakeholder Needs



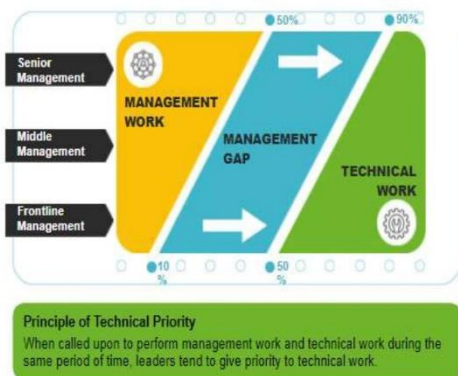
M2S2 – The Louis Allen Management System

2.3 Classification of Results



M2S2 – The Louis Allen Management System

2.5 The Management Gap



M2S2 – The Louis Allen Management System

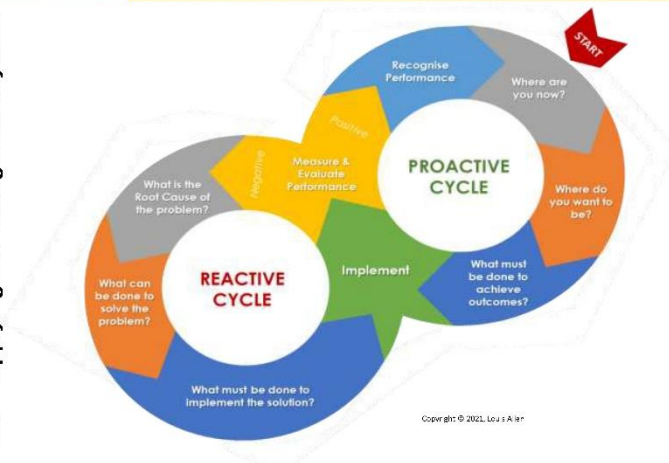
2.5 The Management Work Wheel



M2S2 – The Louis Allen Management System

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2.6 Applying the Management System



3. CONCLUSION

This recommended guideline allows for foundational supervisory leadership development through two exemplar modules. It provides basics to supervisors to lead and drive mining modernisation. The two modules may be used as 'stand-alone' modules or as complementary to other supervisory programmes.

The recommended training guideline includes training slides, a training video, facilitator guide and learner guide. For effective training, the slides should be used together with the facilitator and learner guide. The video may also be used to enhance the learning experience or as a self-learning tool.

The training modules may be accessed via the Mandela Mining Precinct's website or the Precinct's social media platform.