

TECHNICAL SUMMARY REPORT

Programme	LoCM	Work Package Name	LoCM22WP3 Electronic Integrated Planning and Reporting System		
Milestone	LoCM22WP3-4	Milestone Name	Final close-out report		
Service Provider	CSIR	Research Lead	Braam Greeff		
Start Date	01/06/2022	End Date	31/03/2023	Funding Source	DSI
Aim of Work package					
To develop a mine planning operational management concept for implementation with a future electronic integrated planning and reporting system. The aim of this LoCM WP3 programme was to adapt existing OEM planning solutions for the purpose of implementing a possible future integrated planning solution at a mining pilot operation. Collaboration with willing OEMs shall be leveraged to adapt legacy planning solutions in order to implement as many as possible of the future planning processes identified in requirements stakeholder work sessions.					
Methodology			Research Findings		
The requirements elicitation, definition of a functional concept and establishment of an integrated Enterprise Resource Platform (ERP). The methodology followed in this research project was: • Step 1: Conduct requirements elicitation work-sessions • Step 2: Definition of a functional implementation model • Step 3: Implementation at two pilot implementations at Sibanye-Stillwater, a mining shaft			The implementation of an ERP platform requires the integration of all the mining specific domain technology databases from Geology, Planning, Engineering, Volumetrics, Safety, environment and telemetry into a single database. The collation of medium to long-term mine planning data from the strategic levels onto a ERP platform allows for the generation of daily shift level schedules which is made available to the various operational level mine operation stakeholders. Multi-tier mine communications network is essential for the adoption of digitised platforms. Digitised planning functions requires the availability of near-real-time data to enable the compilation of automated schedules, and hence to update schedules when resource availability changes. The MineRP ERP platform implements a strategic, tactical and operational (short horizon) set of planning capabilities, which maps well to the ISA 95 framework levels.		

Conclusions		Recommendation & Next Steps	
The establishment of an integrated planning and reporting system platform was successfully performed at the “Khomanani” and “Saffy” shafts of the Rustenburg and Marikana sites. The collaboration between the various OEM’s resulted in the creation of a vendor agnostic integrated ERP platform, with the capability to integrate seamlessly with any system that adheres to open API interfaces. The unique capability of the MineRP platform to integrate with the Pivot eLogbook system allows Sibanye-Stillwater to improve substantially on their short- horizon near-real time planning schedules, accurate down to the shift-level.		The possibility to develop a digitised mine, with an integrated ERP platform provides the capability to integrate more technologies to the integrated platform to test future emerging technologies. It is recommended that the MMP test mine be utilised as a future site to adopt an integrated ERP platform, similar to the Sibanye-Stillwater mine configuration. This would provide the availability of near-real time data to establish an operations control room capability, which could be used as a future experimentation and research platform. During this research project, it was observed that mine operations room ergonomics and layouts are not optimally designed, and that no clear principles have been established in this domain to enhance mine situational awareness principles.	
Category (RDI)	Development		

Attachments

Milestone Report:

[MMP REP 2022 LoCMWP3MS4 \[2023-03-19\]A.pdf](#)

Figures:

[Figure 1 - Long- and short-term functional capabilities.PNG](#)

[Figure 2 - The FEAF cascaded modelling process..PNG](#)

[Figure 3 - The cascaded planning PRM model..PNG](#)

[Figure 4 - The integrated ERP platform model.PNG](#)

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