# DMaaS - a solution for mining's 4th Industrial Revolution

Mining has always been an intensive industry, from the perspective of resources, time, labour and people safety. The ability to analyse and derive intelligence from vast amounts of data generated across the various aspects of any mine is a revolution in this sector. With the incorporation of the internet of things (IoT) as well as various geoscientific data sources, the potential is massive.

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The benefits are numerous, from proactive monitoring and maintenance to greater efficiency and therefore improved profitability, as well as the ability to protect the most precious resource in a mine – its people. However, given the volumes of data generated, effective data management is essential. Data Management as a Service (DMaaS), is the answer to help mines leverage their data while controlling costs and minimising complexity.

## Safety first

“Mistakes in the mining industry are costly, not simply from a monetary perspective but also from the view the human lives at stake. Digital transformation has had a significant impact, and the ability to collect and analyse sensor data generated from equipment in particular, can assist to improve safety in mining environments. Underground temperatures and levels of harmful gases can be carefully monitored in real time, equipment can be maintained before it breaks, and dangerous situations can be predicted before they can cause injury or loss of life, explains Iniel Dreyer, managing director at DMP South Africa.

“Furthermore, operational decision-making can become more proactive and efficiencies improved. These add an element of competitiveness and enhanced profitability, essential in an industry where commodity prices are fixed.”.

## Extracting data, extracting value

Another area where data is revolutionising mining is in the field of geoscientific information about the physical and chemical properties of rocks and minerals. This data is recorded along with spatial coordinate

so that the precise location of the information is known. It has many sources, and the collection of this information is not necessarily new, however, the potential for analysis has grown exponentially since it beg to be digitally recorded and stored. This has enabled more information, at more granular levels of detail, tc be captured, stored and used for analysis, with exciting possibilities.

“Geoscientific and geophysical data is used in many aspects of the mining value chain. It is used to target exploration programmes in areas where we think there may be concentrations of economically extractable metals. Surface mapping and drill hole data is used to map the presence of mineralisation underground. This enables the construction of 3D virtual models of the mineralisation and rocks, which allows mining engineers to design the mines in virtual reality to allow for the extraction of metals from underground. In operational mines, the mapping, drilling and sampling allow the refinement of the models that allow the mines to operate more efficiently by targeting the mineralisation more accurately," Says Mark Wanless, principal geologist and partner at SRK Consulting,

## Managing and securing the data

With the right technology in place, decisions can be made in minutes that would previously have taken months, and with automation in many areas a large number of improvements can be realised. However, wh the potential for data analysis is exciting, the volumes of data generated pose a significant challenge for many mining organisations. The more data that is generated, and the greater the levels of detail collected, the more complex and costly data storage becomes. Datasets can easily grow to hundreds of terabytes, which requires leading edge hardware to be able to store and process effectively. It is also essential to secure data, since leaks could cause significant financial loss, and any malware breaches could result in danger to the lives of the people physically in the mines.

## DMaaS - managing data whilst reducing costs, complexity

“Effectively leveraging data means that the legacy of siloed information simply can no longer exist. If you a going to get maximum value from data analysis it is critical to have a single view of data across the enterprise. In fact, data lies at the core of all operations today, the speed of data availability is essential, ar IT infrastructure is crucial. However, the cost and complexity of maintaining data management in-house ca be prohibitive, and mining experts are not data experts. This is where DMaaS comes in. By utilising a service-based model, mining organisations can reduce capital expenditure and have access to skilled resources who understand data and how to work with it,” says Dreyer.

DMaaS delivers a leading edge data management platform to assist mines with managing data through a scalable, flexible and agile system that can accommodate the speed of growth required. It can also assist with phasing out legacy infrastructure, delivering data resilience through effective backup and disaster recover, and ensuring effective data security is in place.