



Business

Networks and managed services are making mining efficient and affordable

Connectivity and digitisation services mean that modern miners can deliver sustainable, cost-effective operations



Introduction

Today's progressive miners seek to take advantage of digitally-enabled innovation at every turn. They are integrating modern technology and digital know-how to achieve operational efficiencies, enhance safety measures and achieve cost savings across the mining lifecycle.

Just as mobile networks disrupted landline telecoms, the Internet, cloud and secure wireless connectivity are creating opportunities to move faster and smarter. And, thanks to today's comprehensive managed services, miners can hand off to service providers to design, build, install and manage resilient networks. These networks are the conduits to the data-enabled future of mining, and they can also deliver real efficiencies and savings.

Even at a time when some mined commodities are hitting new pricing highs, an unpredictable economy means no smart miner will want to risk high speculative spending. Also, inflation, ESG-related costs, staffing, procurement, logistics and other factors mean miners need to be diligent and stay on top of cost management.





Digitisation opportunities

What is technology's role here? The simple fact is that applying digital tools and automation wherever possible will help to run an efficient and transparent mining operation. Some of these actions will affect the mines themselves but others will go all the way to the boardroom and Finance office. For example, companies are increasingly turning away from spreadsheets as areas such as Financial Planning & Analysis tools are allowing more forensic oversight of spend and risk by better connecting organisational functions and helping companies to have a Plan B, C and D for whatever comes next.

In modern mining, collaboration is key and digital tools and networks allow people to share knowledge faster and with rich media. Miners always need to be addressing processes and reviewing practices to minimise shift delays, reduce equipment cycle times, improve site conditions and provide superior workflows. Similarly, workforce planning has advanced so that companies can better allocate people to roles and locations, but also that their staff receive the training and mentoring to upskill throughout their careers.

However, there are also some real practical actions that sit on, or close to, the mine floor and many of them are enabled by digital tools and networks. For example, by applying sensors to tailing dams and using data visualisations alongside weather forecasting services, we can mitigate against collapses. By applying AI and data analytics, we can help senior executives make smart, auditable decisions. And, by protecting Supervisory Control and Data Acquisition (SCADA) systems, we can defend against malicious attackers.

Only connect...

Digital communications will underpin everything.

The continued rise of wireless networking mean that operators would no longer need to lay cable to share data. Cellular, WiFi and (increasingly) satellite all have their roles to play here, depending on use case. While protected by the remoteness of wireless communications from terrestrial peers, they support data analytics, private clouds, and status information communication and collection from sensors.

Asset tracking and the Internet of Things.

Making real-time information available on a 24/7 basis can have hugely positive impacts. Remotely monitoring tailing dams takes people out of danger and, similarly, digital compliance testing means a human presence isn't always needed to inspect conditions, thereby creating a lower total cost of ownership. Sensors bring us to the Internet of Things and the ability not only to track equipment and vehicle status, but also to monitor ambient conditions such as heat, light and air quality. This means we can take people out of performing time-consuming (and often dangerous) duties and make faster decisions that save time and money.

Cloud computing.

While cloud has had a seismic effect on business IT across the board, however, when augmented by edge networks, even very remote sites can transmit data. Many miners are using private clouds especially for certain categories of communications, to store data and to use it as the basis for analysis. When managed properly, cloud provides scope for major cost savings because expensive compute, storage and staffing challenges are reduced.



Computer Vision.

By using augmented reality and virtual reality, miners can prepare staff for physical conditions that are highly challenging and time-consuming. Digital Twins and the more comprehensive scope of Virtual Twins mean we have the opportunity to create an editable duplicate of mining operations for 'what if' analysis to be layered over.

Environmental, Social, and Governance (ESG).

Building sustainability into mining is a commitment that also requires investment to meet the compliance burden. That means documenting all activities digitally, scorecarding, monitoring Scope 1, 2 and 3 emissions and reporting.

Ultimately, modern mining is about combining operating technology (OT) for managing industrial equipment and information technology (IT) for managing data. Together, it's possible to merge the physical and virtual worlds to make miners more efficient and safe. Smart miners need to refine their ability to collect, collate and analyse data, and this requires an appropriate investment in digital tools and networks. As it is, we are seeing how AI and Machine Learning are changing the world and there will nevertheless be many more opportunities to understand the mining environment. By harnessing managed services for assistance and having an 'outside-in' perspective, miners can make the shift to documenting, digitising and automating their assets and activities, and work towards creating a single, unified view of operations.



Does your chosen partner help you save costs? If not, a digitally-enabled strategy for modern mining operations may help you to reconsider your choice.



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