



**Summary of
Workshop Session**
November 17

Artificial Intelligence Virtual Forum

During the workshop session at the Artificial Intelligence virtual forum, participants focused on questions regarding building the business case for implementing AI, as well as ethical and educational challenges specific to the implementation of AI in mining operations to address. Additionally, participants considered what is unique to mining in regard to building, validating, and deploying AI models. The outcomes from the workshops will be shared with the GMG artificial intelligence working group to contribute to ongoing AI projects.

What is unique in mining that must be considered when building a business case for the implementation of AI?

Financial Feasibility	Technical Considerations	Data Concerns	Training Needs
<ul style="list-style-type: none"> - Is there a market for AI use? - What is the expected ROI? - How much will errors from the created model cost? 	<ul style="list-style-type: none"> - Site specific IT architecture and capabilities vary - Using AI can improve mining processes - Safety must remain a priority as mines exist in a changing landscape 	<ul style="list-style-type: none"> - Who owns the collected data? - Data collected from employees and business operations must remain private - High quality data is not consistently available 	<ul style="list-style-type: none"> - Share information across siloes to improve workforce culture - Adopt proven change management techniques - Build project teams with technical, business, and operations people

What is unique to mining that must be considered when building, validating, and deploying AI models?

Building	Validating	Deploying
<ul style="list-style-type: none"> - High variability between mine sites leads to inconsistent data quality, formats, and gaps - “Dirty” or incomplete data sets due to inconsistent data management systems - Protect jobs threatened by AI models - Upgrade skills of control room operators in software applications and analytics - Ensure reliable power sources, networks, and communication pathways - Integrate geology, operational, scheduling, and weather data 	<ul style="list-style-type: none"> - Test the quality and amount of data collected - Frequently validate models as internal and external conditions can change quickly - Include crash stops and sampling in validation processes 	<ul style="list-style-type: none"> - Telemetry systems ensure that all extracted data is sent to the AI team who will then predict the maintenance schedule - Collect sufficient data to use for both training and testing - Hard environmental conditions can affect sensor measurements or change conditions during operations

What are the ethical and educational considerations unique to mining when implementing AI?

Ethical	Educational
<ul style="list-style-type: none"> - Each mine is unique due to geography, commodity, political, and local conditions and their stance to mining - Data ownership and use can be problematic, especially in terms of wearables tracking locations and people - Biases in AI algorithms can impact data interpretation - Real or perceived fear of job losses - Environmental impact of cloud computing can be significant and may not be factored into a company’s sustainability initiatives - Protection and sharing of personal information - Data security 	<ul style="list-style-type: none"> - Consistent and adequate training is necessary in a constantly evolving field - Training AI SMEs in mining processes might be preferable to training mining SMEs in AI processes - Site personnel often lack computing skills - Ongoing training and interpretation of technical and modelling metrics is important for users as no model is 100% accurate - Design relevant data science and AI courses that can be added to mining engineering and geoscience curricula - Seek out people with interdisciplinary expertise to manage connections across teams