6 things every miner ought to know about AI

By Leanne Mostert

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Artificial intelligence (AI) offers prospecting and mining operations a greater ability to target likely mineral deposits, plan new mine developments in difficult terrain, control autonomous vehicles and improve recovery rates from diamond sorting or other minerals processing.

Leanne Mostert, partner, Webber Wentzel

As AI applications are developed, there are at least six important legal aspects mining companies should consider in order to avoid future embarrassing and costly disputes.

1. Collaboration/ownership

If the AI project is being undertaken in collaboration with another party, mines should establish who will "own" the outcome, taking into account issues such as the value that each party brings, the elements that the mining company is most interested in (algorithm, data, output of algorithm) and the commercial aims for each element. The appropriate intellectual property (IP) agreements should be in place, as well as other contractual protections, such as rights to use, exclusivity and confidentiality.

2. Developing AI & data

It is important to know whether the use of data in training and testing the AI project continues to be compatible with prevailing data protection and confidentiality laws. Consider the consequences of third parties accessing the data and ensure there is either a data processing or data sharing agreement in place. If possible, anonymise the data (remove possible identifiers in personal data) to avoid these concerns. Use regulatory or development sandboxes, which are isolated environments in which testing can be conducted without harming the host network. Where necessary, conduct a data protection impact assessment.

3. Liability and regulation

AI may make decisions for which the mining company will be held responsible. If the AI system is provided under a

contract, the contract must address the standards required and include limitation and exclusion provisions. If the system is not provided under a contract, the mining company needs to consider its liability in the event of infringement of rights and whether an appropriate disclaimer would be necessary. When the system takes decisions about individuals, it is important to ensure that the process is fair, lawful and not discriminatory. A system that takes important decisions about individuals requires additional controls, such as informing them and allowing them the option of a human re-evaluation. The system should also be secured from cyber-attacks.

4. Safe use

AI systems could behave unpredictably. Their potential dangers should be factored into the mining company's broad risk framework and they should be properly tested before use. Their use should be appropriately supervised, including ensuring circuit breakers are in place if the behaviour exceeds certain boundaries.

5. Ethical use

Mining companies should consider the future impact of AI on the business. How does it fit into the broader corporate social responsibility policy? Is it necessary to have an ethics committee or another board committee to oversee AI? What is its impact on the workforce? It is also important to be transparent about the use of AI, where possible, and to track government and regulatory responses to AI.

6. Intellectual property

AI raises various challenges for patent law, particularly whether the existing legal framework can accommodate the intelligent machine.

The first barrier relates to patenting the original algorithm. In most countries (including South Africa) abstract mathematical methods are not per se patentable. The second barrier is whether the outputs of AI systems can be patented, particularly where the AI system is independently inventive without human involvement. The key unresolved issue here is whether a human inventor is required for an invention to be patentable.

We expect the view of patent offices globally will be that a human inventor is required. If so, then inventions by AI systems may not be patentable under the existing legal framework. Protecting AI outputs is currently challenging the IP legal framework.

ABOUT THE AUTHOR

Leanne Mostert is a partner at Webber Wentzel