Mining Innovation Analytics

"Value engineering through systems integration"

Industry Challenge: Accelerate the development and commercial implementation of innovative technologies and processes.

NRC Solution: Clearly demonstrate the potential value of technological innovations.

Techno-Economic Analysis (TEA)

Understanding technical risks and economic feasibility of new technologies or processes is crucial for their successful development and commercialization. As an integral part of research and development activities of the High Efficiency Mining program, TEA supports on-going and future research by evaluating industry needs, formulating technical product requirements and estimating economic impact and commercialization potential of new technologies or processes. This approach provides a sound foundation for effective technology management and helps minimize investment risks at every stage of R&D.

SMART Modeling – HEMSim™

Our team is developing the High-Efficiency Mining Simulation (HEMSim™) for intelligent flowsheet design and process plant optimization. HEMSim™ merges traditional process modelling with geometallurgy and economic metrics indicators, such as OPEX, CAPEX, NPV and utilizes parametric modeling to enable predictive dynamic analytics of key performance indicators. Cutting-edge optimization capabilities of HEMSim™ allow one to maximize systems' economic performances in response to variability in process-related and/or financial parameters (e.g., ore body, consumables cost, pay metals prices).

Digital Mine Intelligence (DMI)

Digitization of mining activities is expected to generate vast amounts of information. Harvesting the full potential of the digital mine requires well-managed and secure communications and information technologies. The NRC provides state-of-the-art data gathering and data analytics capabilities.

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