

From Simulation to Real Results: Global Mining Leaders Recognised for Measurable Performance Gains

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Immersive Technologies has unveiled the winners of its 17th Annual Global Business Improvement Awards, celebrating mining companies that are setting new benchmarks in operational performance through the effective use of simulation-based development. Selected from customers across 57 countries, the award winners have achieved outstanding results by improving safety, productivity, and equipment reliability through targeted workforce development initiatives.

These projects highlight how aligning people, process, and technology can deliver measurable performance gains. This year's award-winning initiatives were implemented across mixed fleets, including Komatsu, Caterpillar®, and Hitachi, reinforcing the flexibility and broad application of simulation driven solutions.



Global Award Winners:

- **Operational Cost Optimization, Newmont** – Peñasquito Mine (Mexico)
- **Machine Reliability, Glencore Operations South Africa** (South Africa)
- **Truck Productivity, VALE** – Salobo Mine (Brazil)
- **Safety, Ok Tedi Mining** (Papua New Guinea)
- **Shovel Productivity, Valterra Platinum** – Mogalakwena Mine (South Africa)
- **Sustainability, PT Kalimantan Prima Persada (KPP)** – (Indonesia)



Newmont's Peñasquito mine, located in the state of Zacatecas, Mexico, is one of the largest open-pit mining operations in the world, producing gold, silver, lead, and zinc. Since beginning commercial operations in 2010, Peñasquito has consistently applied continuous improvement practices to enhance productivity, safety, and cost efficiency across its large-scale haulage and loading operations. Through joint analysis by Mine Operations and the Training Department, Peñasquito identified truck spot time at electric shovel loading areas as a critical contributor to haul cycle inefficiency and elevated operating costs.

Newmont Peñasquito partnered with Immersive Technologies to launch a targeted Continuous Improvement project supported by Operator Performance Analytics (OPA). The project combined OPA-driven data analysis, simulator-based training, and structured field follow-up to identify high-variability operator behaviors and standardize best-practice spotting techniques.

Real Results include:

- Truck spot time reduced by 12%, exceeding the original project target of 10%
- Reduced variability in operator spotting performance, as validated through OPA risk and distribution analysis
- Improved haul cycle efficiency, contributing directly to lower operating costs per ton
- Achieved 102% of planned pit tonnage
- The project delivered an estimated operational cost benefit of approximately USD \$12 million

"This project allowed us to see how, with the right approach, our operators gained confidence in what they do every day. By understanding that small adjustments in their maneuvering could make a real difference in production, they felt part of the results, became motivated to improve, proudly took ownership of their performance, and realized that standardization is not a rule, but a tool to work with greater safety, confidence, and efficiency."

— **Erick Palomar**, Technical Training People Lead.



Newmont - Peñasquito's team, Operational Cost Optimization winners.



GLENCORE

Glencore Operations South Africa (Pty) Ltd- Coal Division (Glencore) operates large-scale open-pit coal mining operations near Emalahleni, where haul truck reliability is critical to sustaining production and controlling maintenance cost. With a high utilization fleet of Caterpillar® 785 haul trucks, Glencore's maintenance and operations teams closely monitor equipment events that indicate abnormal operating practices and potential premature component wear. During routine analysis in mid-2025, Glencore identified a significant increase in Operator-Induced Events (OIEs) related to transmission abuse, shifting practices, and engine protection overrides. To address this, Glencore partnered with Immersive Technologies to deliver a focused machine reliability improvement initiative targeting operator behavior that directly impacts drivetrain health.

Real Results include:

- 49.5% reduction in total Operator-Induced Events
- 31.9% reduction in Abusive Shift events
- 75.3% reduction in Low Engine Coolant Temperature warnings, reducing cold-start related engine risk
- 52.2% reduction in Coasting in Neutral events

"By combining data-driven insights with Immersive Technologies and hands-on training, we are not only addressing critical risk behaviors but also empowering our operators with the skills and confidence to perform at their best. The results we see highlight the value of investing in our people to drive safer outcomes, protect our assets, and improve overall operational performance."

— *Oos Van Der Merwe, General Manager at Tweefontein Complex – Glencore Coal.*



Glencore Operations South Africa – Machine Reliability winners.



Vale operates the Salobo copper mine in the state of Pará, Brazil, one of the company's main operations, producing copper and by-products at large-scale. The site operates continuously with a large team of experienced equipment operators and a mixed fleet of Caterpillar® and Komatsu haul trucks supporting cable excavator operations. Maintaining efficient truck-excavator interaction is critical to sustaining productivity in this high-capacity environment. Vale identified that excessive truck maneuvering time during loading and tipping activities limited overall transportation efficiency and restricted excavator

productivity. The CI project focused on reducing maneuvering and tipping times through simulator-based training and structured field training. A select group of qualified operators, whose performance significantly influenced key metrics, participated in a training program specifically designed for the behaviors and techniques identified by on-site instructors.

Real Results include:

Caterpillar® 793D Haul Trucks

- The truck's maneuvering time was reduced by 18%.
- Tipping time reduced by 22%

Komatsu 830E Haul Trucks

- Truck maneuvering time reduced by 22%.
- Tipping time reduced by 22%.

Overall Improvements in Truck Productivity

- Average reduction of 10% in maneuvering time during loading.
- Average reduction of 11% in tipping time.
- Average increase of 3% in truck operating speed.
- A 48% reduction in operational failures related to driving technique and braking practices.

"We believe that the use of simulators, combined with the strength of the partnership, represents an important milestone in the continuous pursuit of excellence, safety, and innovation."

— *Magnaldo Sindeaux, Coordinator of Training and Fatigue Monitoring.*



Ok Tedi Mining Limited operates the Mt Fubilan mine in the Western Province of Papua New Guinea, a large-scale, continuous mining operation producing copper, gold, and silver. As the operation expanded and crews were drawn from multiple regions, Ok Tedi identified growing variability in operator performance and risk exposure across its haul truck workforce.

Ok Tedi partnered with Immersive Technologies to implement a data-driven safety improvement initiative built on Operator Performance Analytics (OPA) and targeted simulator-based training. The project focused on identifying operator

safety risk trends, reducing operator-induced events, and shifting training from broad, periodic assessment to focused coaching based on verified operating behavior.

Real Results include:

- Overall operator risk reduced by 11%, including safety, maintenance, and production-related errors
- Abusive shifts reduced by 54%
- Safety-related operator error metrics reduced by more than 70% within the trained operator group
- Measurable reduction achieved within 90 days post-training, demonstrating rapid behavior change

“Leveraging the existing fleet whilst welcoming a new operating philosophy (mechanical to electrical) driven by the social license to operate.”

— *Alex Tausem, Superintendent Mine OHS & Training - OK TEDI MINING LIMITED.*



Ok Tedi Mining Limited – Safety winners.



Valterra Platinum's Mogalakwena Mine, located in South Africa's Limpopo Province, is home to the world's largest open-pit platinum group metals operation and represents a tier one asset for the company's portfolio. Within its high-intensity environment, rope shovel productivity directly influences downstream haulage efficiency, plant feed stability and overall unit cost performance.

As part of its surface mining operations, Mogalakwena deployed a Komatsu P&H 4800XPC rope shovel with a target production rate of 6,000 tons per hour. However, since commissioning, the shovel struggled to achieve consistent output.

Valterra Platinum implemented a targeted shovel productivity improvement initiative focused on operator capability development, combining simulation-based learning with in-field performance validation. The program was delivered with Immersive Technologies as an enabling partner within Valterra Platinum's learning and operational system, in collaboration with Komatsu.

Real Results include:

- 12.71% improvement in average tons per hour
- 6.11% improvement in average loading time
- 8.04% improvement in tons per pass
- 4.04% reduction in passes per load
- 8.98% improvement in truck loads per hour
- 12.8% reduction in boom jack events

"The continuous improvement project on the Rope Shovel 4800XPC has led to clear gains in reliability, productivity, and efficiency, with significantly reduced downtime, improved operator confidence, and stronger, more consistent performance—resulting in positive impacts on both production output and maintenance planning. The 4800XPC being the only big shovel in Africa has demonstrated significant improvement, averaging 6500 t/h from 4500 t/h. We're delighted to have witnessed this real time improvement from a business perspective."

— *Emanuel Sekgokong, Mining Manager.*



Valterra Platinum's team, Shovel Productivity winners.



PT Kalimantan Prima Persada (KPP) is Indonesia's largest integrated mining services company, operating across multiple coal mining regions as well as port, hauling, gold, and nickel projects. KPP's operations span challenging terrain conditions, including steep haul road grades, high rolling resistance, and long operating hours.

At several KPP coal mine operations in Kalimantan, fuel consumption of Komatsu HD785 haul trucks was identified as a sustainability and cost challenge. Analysis showed that operator behavior, including throttle management, braking practices,

power mode selection, and transmission use, was a primary contributor to elevated fuel burn, greenhouse gas emissions, and operating cost volatility. Inconsistent operating techniques also increased the risk of equipment wear and inefficient energy use, particularly under demanding haul road conditions.

KPP partnered with Immersive Technologies to implement a structured simulator-based operator competency development program focused on fuel efficiency and sustainable operating practices. The project combined classroom instruction, high-fidelity simulator training scenarios, in-field mentoring, and continuous performance monitoring through onboard data systems.

Real Results include:

- Average fuel consumption reduced by 6.6 liters per hour on Komatsu HD785 haul trucks
- Operational fuel cost savings of approximately IDR 800 million per month
- Greenhouse gas emissions reduced by 4,266 metric tons of CO₂, supporting KPP's ESG objectives
- Significant reduction in risky operating behaviors, including aggressive throttle use, braking, RPM dumping, and improper power mode selection
- Measurable improvement in haul truck productivity through more efficient and consistent operating techniques

"The use of simulators has proven effective in reducing fuel consumption by fostering more efficient operating patterns."

— *Farishi Putra Habibi, Operation Learning & Development Manager.*

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Media Release



E X P E C T R E S U L T S

Phone: +61 8 9347 9011

Fax: +61 8 9347 9090

Email: enquiries@ImmersiveTechnologies.com

Web: www.ImmersiveTechnologies.com

About Immersive Technologies

Immersive Technologies is the world's largest, proven and tested supplier of surface and underground Advanced Equipment Simulators to the global mining industry. The company has achieved this unique position by focusing on its mission to increase Customer profitability by optimizing the safety and productivity of their operators. Immersive Technologies' Advanced Equipment Simulators are helping hundreds of mining companies around the world to increase their equipment operators' safety and site profitability through effective simulation training.

With advanced simulator modules deployed in 57 countries, Immersive Technologies is dedicated to providing outstanding service. To deliver on this commitment the company has customer sales and support offices located close to its customers in Perth and Brisbane Australia, Salt Lake City and Tucson USA, Fort McMurray and Vancouver Canada, Zacatecas Mexico, Lima Peru, Santiago Chile, Belo Horizonte Brazil, Johannesburg South Africa, London United Kingdom, Jakarta Indonesia, Kolkata India and Moscow Russia.

Immersive has the global mining experience, innovative technology, product range, industry endorsement, proven support commitment and industry vision to partner with you to ensure your simulator training solution delivers the significant results you expect.

For more information and associated media please contact:

Andres Arevalo

Marketing Events & Demand Manager

Immersive Technologies

aarevalo@ImmersiveTechnologies.com | Tel: +61 (8) 9347 9011

ImmersiveTechnologies.com