

Five Mining Companies Recognized for Performance Excellence - Immersive Technologies' 12th Annual Business Improvement Award

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Immersive Technologies has announced the winners of its 12th annual Global Business Improvement Award. Immersive Technologies recognizes the most outstanding [results](#) achieved by mining companies who use simulation as a key driver in the business improvement process.

Category winners are selected from customers across 45 countries for their achievements in continuously improving operational safety, productivity and maintenance through strategic simulator-based initiatives. These projects demonstrate excellence in aligning people, process, and technology to push the mining performance envelope across any OEM make, this year's winners operate mixed fleets including Komatsu, Caterpillar, Liebherr and Hitachi



Global Award Winners:

- Truck Category – CSN Mining (Brazil)
- Shovel Category – Bighorn Mining (Canada)
- Autonomous Haulage Systems Category – Iron Ore Mine (Australia)
- Excavator Category – Glencore Bulga Coal (Australia)
- Safety Category – Caserones (Chile)



As part of CSN's (Minas Gerais, Brazil) focus on continuously improving operations, the company partnered with Immersive Technologies for a haultruck-based CI project spanning multiple operational categories. Through the project, CSN achieved results in both productivity and maintenance-related key performance metrics for Caterpillar 793 haul trucks.

Results include:

- 21% reduction in haul truck spot time
- 7% reduction in dump time
- 24% reduction in brake temp alarms

"CSN Mineração are proud to receive such recognition from Immersive Technologies. With the acquisition of the IM360-B simulator, we added an excellent reinforcement to our operational training team and to our mine's safety. By using all the resources offered by Immersive, we reduced the average training time by 50% and achieved a reduction in diesel costs," says **Valdecy Inocência Caldeira**, Mine Operations Manager - Companhia Siderúrgica Nacional (CSN).

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Media Release



EXPECT RESULTS

Phone: +61 8 9347 9011

Fax: +61 8 9347 9090

Email: enquiries@ImmersiveTechnologies.com

Web: www.ImmersiveTechnologies.com



Bighorn Mining (Alberta, Canada), with the support of Immersive Technologies Professional Services, sought to improve shovel productivity on their Komatsu PC5500 by targeting specific loading best practices. Operators trained by Immersive Technologies' on-site training specialist had a wide range of experience.

Results include:

- 7.4% improvement in bucket payload
- 3.7% improvement in truck payload
- 4.7% improvement in digging cycle time

"Our partnership with Immersive Technologies and the utilization of their simulator has been a key component of our training program. It has yielded very positive results in both productivity and safety. The scenarios each operator trains on are very realistic and customized for our location. We have a multi seam operation with steeply dipping coal and the program enables us to focus on problems created by geology and improper machine setup. The strategy was to emulate the operating techniques of our top operators, share best practices and provide them with an opportunity to practice those techniques. We ran multiple scenarios, shared the results, and used positive reinforcement to make the changes we were looking for. The operators have delivered the results in productivity, and we have worked more than 900 days without a Lost time Injury," says **Audry Rappleyea**, Mine Operations Manager – Bighorn Mining.



An autonomous haulage Iron Ore Mine (WA, Australia) in collaboration with Immersive Technologies sought to move towards an optimization phase of the operation, specifically looking to reduce the impacts of operator behavior within their Liebherr R996 Excavator fleet which utilized the CAT Command for Hauling Autonomous system.

Results include:

- 4% improvement in Instantaneous Dig Rate
- 7% improvement in Production Dig Rate
- 6% improvement in Average Time Between Trucks
- 5% improvement in Average Cycle Time - Excluding Hangtime
- 20% improvement in Average Truck Queue Time Per Cycle

"With the advent of Immersive simulator technology we have been able to accurately benchmark our operators performance and embark on a program of targeted improvement by way of intensive mentoring, leveraging off our simulator data analytics. This has resulted in real world sustainable improvements in operator performance across a number of deliverables," says **the Mine Site Training Supervisor**.

GLENCORE

Glencore Coal Assets Australia (NSW, Australia) expanded their simulation training focus to incorporate operational proficiency improvement. The key emphasis for Glencore in the initial introductory program was production optimization across their excavator fleet at the Bulga Open Cut operations in New South Wales.

Glencore partnered with Immersive Technologies to develop an excavator continuous improvement program (Hitachi 5600-6 excavator) with the objective of increasing the production performance of excavator operators.

Results include:

- 10.6% improvement in coal Instantaneous Dig Rate
- 17.6% improvement in coal Production Dig rate
- 13.8% improvement in overburden Instantaneous Dig Rate
- 16.4% improvement in overburden Production Dig rate

"Our Australian Coal operators have experienced the benefits of simulation-based technologies in partnership with Immersive Technologies over many years. The inclusion of operator proficiency programs in our simulator strategy has been a natural progression for Glencore. The results of the Bulga Open Cut proficiency program have demonstrated real time production performance improvements and demonstrates a quantifiable return on investment in developing our people," says **Doug Kennedy**, Training & Development Manager - Glencore Coal Assets Australia.



Caserones (Atacama, Chile) set their sights on two specific goals: 1) to increase the availability of trucks and reduce cost through increased tire life; and 2) eliminate the occurrence of safety incidents. Over 12 months, Caserones contracted with Immersive Technologies to develop a program which assesses and trains operators to close performance gaps directly correlated to these key

performance indicators. Training was conducted by an Immersive Technologies embedded trainer.

Results include:

- Increased tire life (2019) 25% (1,186 hrs.), saving 1.4M USD
- Increased tire life (2020) 13.8% (818 hrs.), saving 2.6M USD
- Decreased safety incidents (2019) 46%
- Decreased safety incidents (2020) 79%

"The use of Immersive Technologies simulators at Caserones has meant establishing the risk profile of all our operators, closing gaps, and improving operating practices that translate into reducing equipment incidents. Also, by evaluating operational behaviors quantitatively, it has allowed us to focus on and train best practice to achieve productive results."

"The joint work between Immersive and the mine's operational control team is key, identifying operators that require reinforcement, establishing an annual simulator evaluation plan, and generating permanent improvements to existing events and scenarios to ensure a correct understanding of how precise procedures should be applied by the operators."

"What is not measured cannot be improved and, in that sense, simulators allow us to measure the expected behaviors in the operation of mining equipment and therefore improve continuously," says **Hernan Návea**, Training Department Manager - Caserones.

Immersive Technologies congratulate this year's Global BI Award recipients who now join the ranks of prominent past winners including Vale, Rio Tinto, Kiewit Mining Group, PT Pamapersada Nusantara (PAMA), Cipta Kridatama, Cliffs Natural Resources, Syncrude, Kinross and Codelco.

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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 45 countries, Immersive Technologies is dedicated to provide 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 USA, Fort McMurray, Vancouver Canada, Monterrey Mexico, Lima Peru, Santiago Chile, Belo Horizonte Brazil, Bochum Germany, Johannesburg South Africa, Jakarta Indonesia, Kolkata India and Moscow Russia.

Immersive Technologies has the global mining experience, innovative technology, product range, OEM relationships, 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
Global Marketing Promotions Manager
Immersive Technologies
aarevalo@ImmersiveTechnologies.com | Tel: +61 (8) 9347 9011
www.ImmersiveTechnologies.com