

Robots, a leap forward in mining innovation: Roberto Guzmán García

The automation of mining through robots not only increases operational efficiency but also significantly reduces workers' exposure to extreme conditions.

TORONTO, ONTARIO, CANADA, October 8, 2025 /EINPresswire.com/ -- Mining, one of the most important industries for the Mexican economy, has long faced a dual challenge: increasing productivity while ensuring worker safety in high-risk environments, says [Roberto Guzmán García](#).

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Roberto Guzmán García

However, according to the mining expert, the development of robots and automated technologies is one of the strongest alternatives for transforming the way natural resources are extracted.

In this regard, the Mexican specialist argues that the use of robots in this industry is not a distant trend, but a reality that is already bringing about profound changes in different parts of the world.

Roberto Guzmán García also says that the automation of mining through robots not only increases operational efficiency but also significantly reduces workers' exposure to extreme conditions such as high temperatures, cave-ins, toxic fumes, or explosions.

"Mining remains one of the most dangerous activities on the planet. The use of robots allows workers to be moved away from critical areas, reducing accidents and human losses, while increasing productivity," says the expert.

Clear examples of this change can already be seen internationally. In Chile, Codelco has incorporated robotic systems for drilling and exploration in underground mines, allowing operations to continue in spaces that would be inaccessible to human personnel.

"Meanwhile, in the field of innovation, prototypes such as the Robominer — developed in the European Union to explore mineral deposits in hard-to-reach mines— are gaining attention. Also notable is the Atlas system from Boston Dynamics, which has been adapted for reconnaissance

tasks in hostile environments."

These advances, says Roberto Guzmán García, reflect the potential of an industry that is rapidly reconfiguring itself.

Challenges of using robots in mining

The Mexican expert warns of the challenges that accompany this process, such as the high initial investment required for robots and automated systems, which limits their adoption in small and medium-sized mining companies.

He also emphasizes the training of the workforce to operate, maintain, and supervise these technologies, which is essential.

"Technology does not replace human value; it transforms it. The challenge is to prepare workers to move from high-risk physical labor to tasks of supervision, programming, and system control," explains Roberto Guzmán García.

The specialist notes that in Mexico, the implementation of robots in mining is still in its early stages. Still, it represents a significant opportunity, especially considering data from the National Institute of Statistics and Geography (INEGI), which indicates that the mining sector contributes 2.3% to the national GDP.

He adds that the integration of technology can become a key lever for increasing international competitiveness, complying with environmental standards, and ensuring greater workplace safety.

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