MINERALS MINING: THE FOREFRONT OF TECH INNOVATION

At each stage of the mining process, the mining industry uses advanced technologies to access vital resources, improving efficiency and production, while increasing miner safety, and reducing costs and environmental impacts.

**UNMANNED EXPLORATION:**
Electronic sensors can locate deposits in up to 175°F conditions—enabling us to dig deeper than ever before.

**DEVELOPMENT:***
Drones are sent into mines to complete 3-D mapping, survey mine walls and inspect equipment.

Many of today’s miners are also digital and tech specialists, and mines leverage the technical expertise of professionals including:

- Mining and equipment manufacturing companies collaborate to develop technology and equipment tailored to the unique conditions of mines and project needs, while improving overall efficiency.
- Maintenance and assessment software helps people do their jobs more effectively.
- Lighter mining trucks can increase haul capacity by up to 6%.

Mining has always been a leader in sustainable tech—introducing hybrid vehicles in the 1950s. Today, we continue to work with manufacturers to improve vehicle fuel efficiency, durability and haul capacity.

**OPERATIONS CULTURE + SAFETY:**
Sensors and drones detect specific conditions like shifting rocks and vehicle locations.

- Autonomous vehicles remove the risk of human error—keeping miners safe while ensuring accuracy.
- Sensors and drones expand the search area by charting unknown sections while miners stay safe on the surface.

**CONSTRUCTION:**
Mining and equipment manufacturing companies collaborate to develop technology and equipment tailored to the unique conditions of mines and project needs, while improving overall efficiency.

**RECLAMATION + SUSTAINABLE OPERATIONS:**
Leasing Geographic Information System (GIS) specialists, autonomous vehicles, and drone operators help mines clean up the environment.

- Mining's GIS technology and modern environmental impact software have facilitated award-winning land reclamation solutions.
- 2.9 million acres have been reclaimed by U.S. mining.

**SOURCES**
3. [https://nma.org/2017/12/05/barrick-gold-advancing-digital-mining-maintenance/](https://nma.org/2017/12/05/barrick-gold-advancing-digital-mining-maintenance/)