

Innovation in mining and recycling- IT and other tools application



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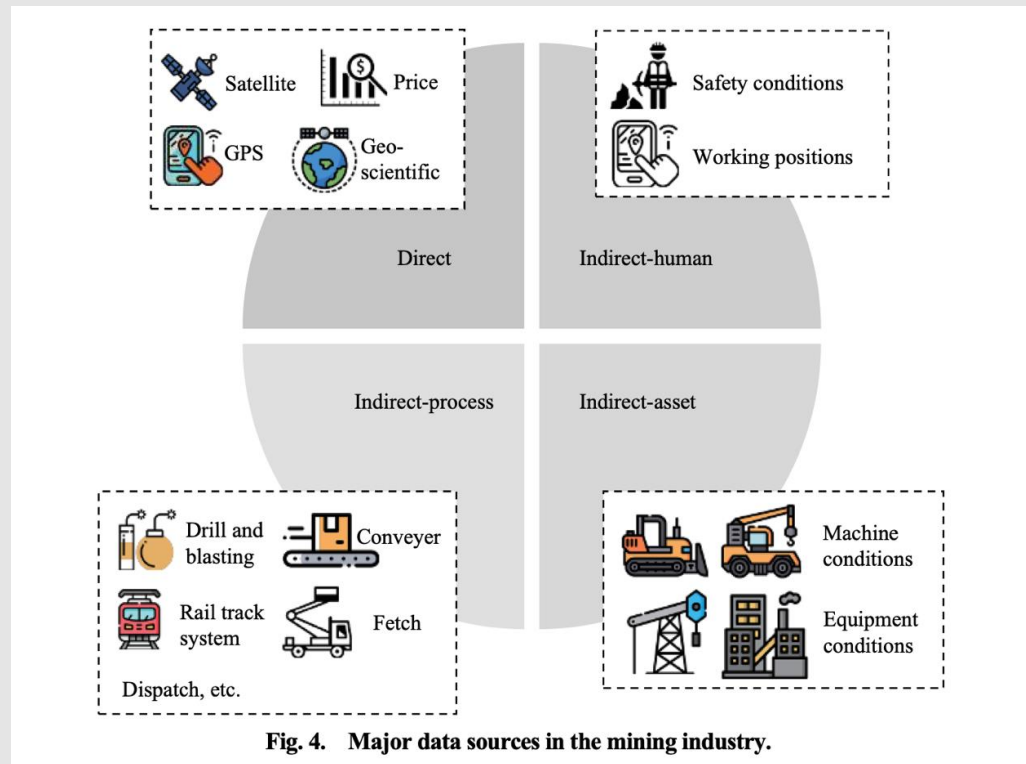
Modern mining industry faces many challenges on its operation

- The decrease of ore grades.
- Deeper deposits of crucial minerals.
- The increase of environmental problems.
- The increase of social awareness of the mining industry.

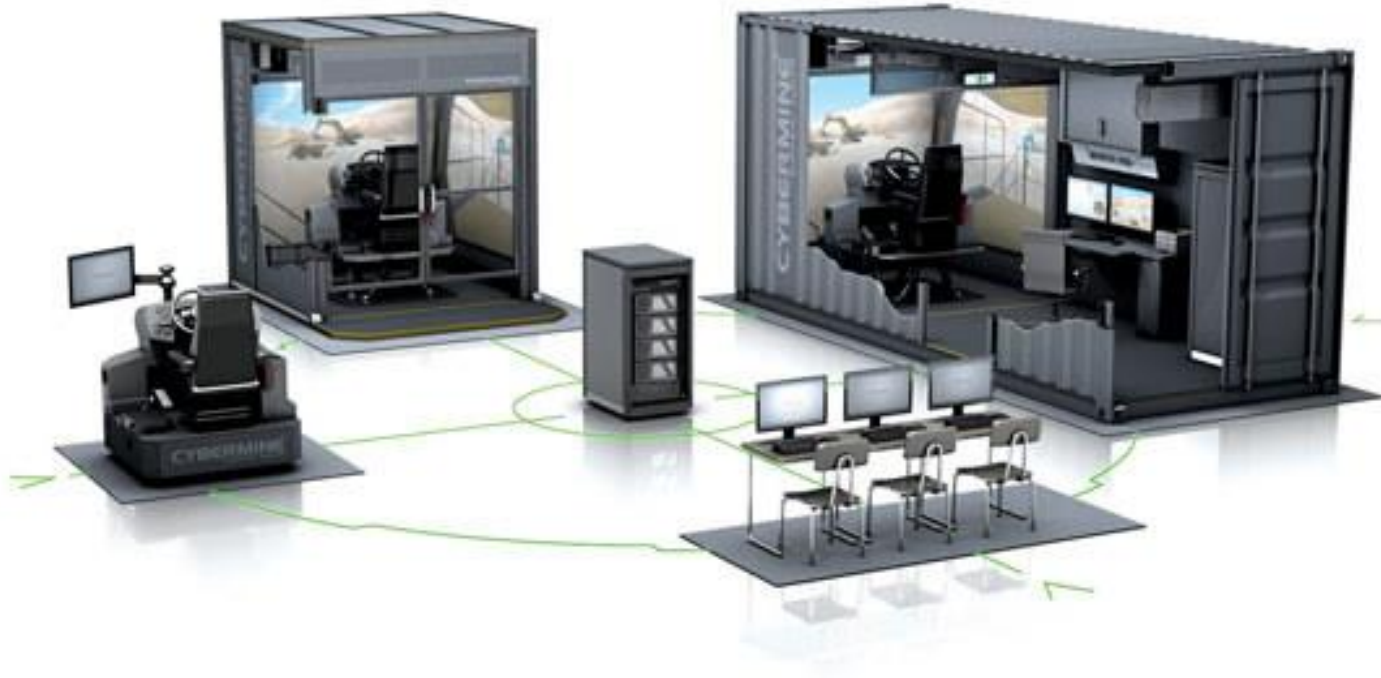
1) Big data management

Benefits of embracing big data in the mining industry:

- **Improve efficiency**
- **Energy management**
- **Safety, security, and reliability**
- **Improved operational management**



2) Mining simulators



Mining simulators provide to instructor the ability to:

- Set up and modify a set of standard exercises
- Select exercise start position and initial equipment parameters
- Choose artificially intelligent objects
- Vary world specific parameters and interactive events
- Watch historical and real-time graphs of important sub system quantities
- View a display showing the current state of all instruments and controls during execution
- Inject faults either randomly or on command and then monitor student responses

3D SURROUND SOUND AUDIO

Mining simulators provide high fidelity 3D directional audio cues to realistically simulate the sounds emanating from the various sub-systems and external sources.

REMOTE VIEWING CAPABILITY

The simulator system is capable of streaming simulation content from the instructor station to nearby classrooms to train larger audiences and for post-simulation review and after-action replay.

ADVANCED INSTRUCTOR STATION

The advanced instructor station allows the mine instructor to monitor and control every aspect of the evaluation in real time on two high definition displays.



3)Autonomous logistics



The benefits of using autonomous logistics in the mining industry

- Less travel time due to fewer wasted trips
- Cost effective fuel management
- The decrease of damaging equipment
- No waiting time to replace the broken component
- Making the mining site safer for workers

4) Alternative forms of energy



- Wind energy
- Solar energy
- Nuclear energy
- Hydrogen gas
- Tidal energy
- Biomass energy
- Biofuels

TECHNOLOGY

DIGITALISATION

FUTURESMART MINING™

and they all work together.
SUSTAINABILITY

SOURCES

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