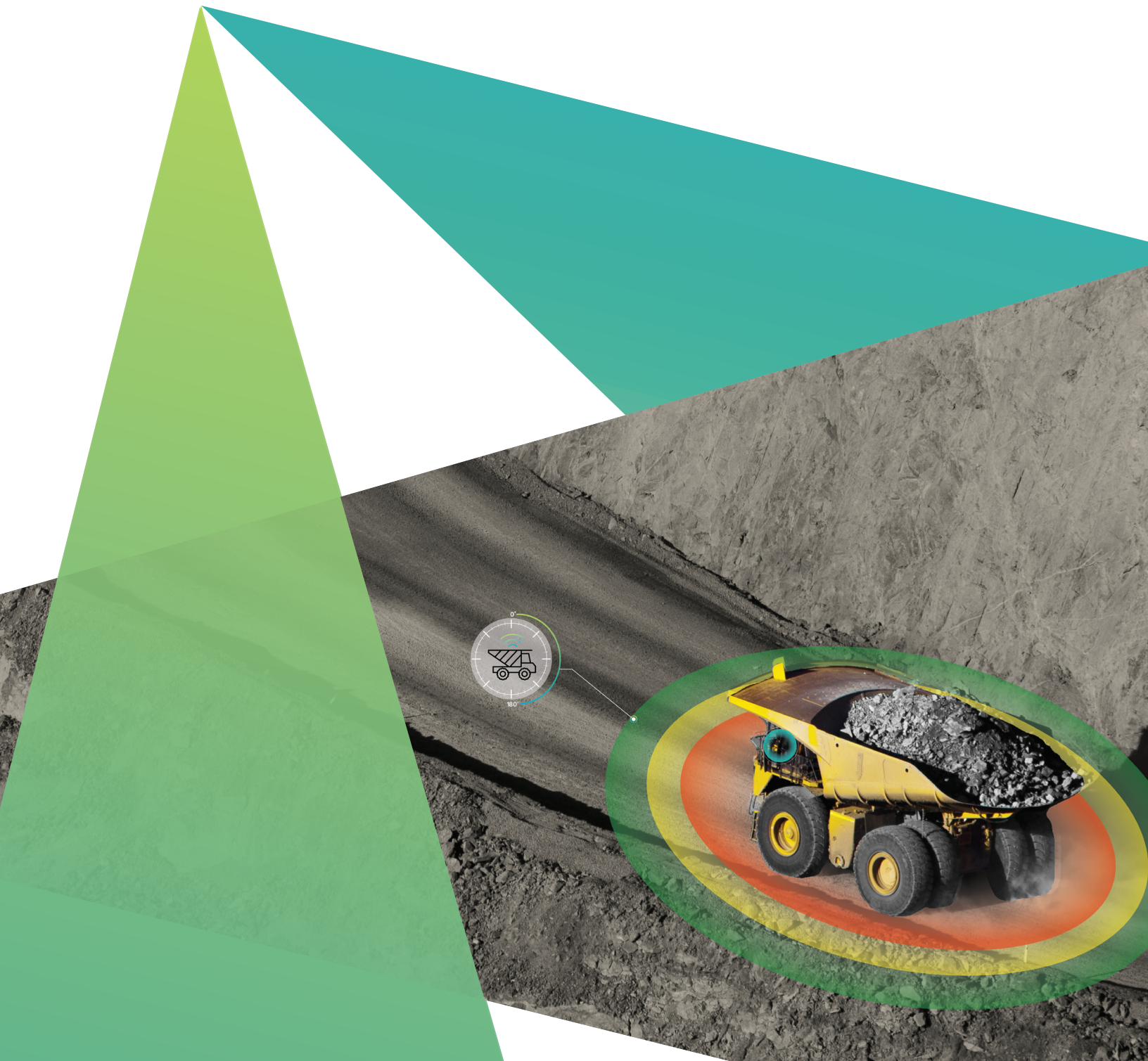


# HxGN MineProtect

Serious about safety



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## Serious about safety

Noise, fatigue, distraction and poor visibility are daily hazards for miners and equipment. Their safety demands more than partial solutions. HxGN MineProtect is a comprehensive safety portfolio integrating market-leading, OEM-independent solutions for collision avoidance, operator alertness, personal protection and vehicle intervention.

### Keep your most important assets safe without compromising efficiency or results



#### Collision Avoidance

360-degree awareness that protects vehicles, equipment and operators



#### Visual Awareness

A smart camera system that integrates solutions for monitoring shovels and other heavy equipment to mitigate blind spots



#### Proximity Detection

Protects against potential hazard's position and motion



#### Pedestrian Safety

Ensures 360-degree visibility of pedestrians around heavy equipment



#### Fatigue and Distraction Management

Helps operators to maintain the level of attention necessary for long hours and monotonous tasks



#### Vehicle Intervention

Recognizes and mitigates vehicle hazards by autonomously taking control in potentially dangerous situations



# HxGN MineProtect 360° Safety Management Platform

MineProtect’s 360-degree Safety Management Platform combines technology, training and data to support any organization’s safety management program. It integrates solutions for operator alertness, mitigating the effects of fatigue and distraction on individual operators, collision avoidance to prevent vehicle-to-vehicle interactions, and personal protection to ensure pedestrians and those around the equipment are alerted and empowered to act. Enhanced by predictive technologies through our partnership with Fatigue Science, these solutions supply valuable metrics and insight throughout the operation, supervisors and leadership team.



|                                   | <br><b>Historical</b>  | <br><b>Point of Time</b>   | <br><b>Remote Validation</b>  | <br><b>Predictive Forecast</b>       | <br><b>Education &amp; Change Mgmt.</b> |
|-----------------------------------|--|--|---|--------------------------------------|---|
| <b>Leadership &amp; HSE</b><br>   | <b>Safety &amp; Productivity Analytics</b><br>MineEnterprise<br>OASWeb<br>On-duty fatigue data |  |   | <b>Schedule Optimization</b><br>     | <br>BUSINESS VALUE CREATION. ACHIEVED.  |
| <b>Front Line Supervisors</b><br> | <b>Intervention Logging</b><br>  | <b>Supervisor Alerts</b><br>Phone<br>Tablet<br>Computer<br>        | <b>Event Validation</b><br>Local or Remote<br>Independent<br>Validation<br> | <b>Crew Fatigue Forecast</b><br>     | <b>Serious about Safety</b><br>         |
| <b>Operators</b><br>              | <b>Personal Fatigue &amp; Sleep Trends</b><br>   | <b>Personal Alerts</b><br>Wearable<br>Seat Vibrator<br>Audible<br> |   | <b>Personal Fatigue Forecast</b><br> | <b>Training</b><br>                     |

## Collision Avoidance

HxGN MineProtect Collision Avoidance System (CAS) is a non-intrusive cabin display unit, protecting all mining vehicles, assets, and vehicle operators in open pit mines. The solution provides 360-degree awareness for surrounding vehicles and selected assets, as well as a technology-leading collision avoidance function based on path prediction. The system uses GNSS and RF technologies and requires no support infrastructure.

- \* Reduce the risk of collisions between equipment, vehicles and personnel
- \* 360-degree protection at any speed or visibility
- \* See vehicles up to 500 meters away without direct line of sight
- \* Works in all conditions: fog, rain, snow, dust and mud

CAS is the foundation for the level-9 HxGN MineProtect Vehicle Intervention System, which stops vehicles when an operator fails to do so in defined situations.



## Operator Alertness

HxGN MineProtect Operator Alertness System (OAS) is a non-intrusive fatigue and distraction management solution that helps operators to maintain the level of attention necessary for long hours and monotonous tasks.

Effective for heavy and light vehicles, OAS uses sophisticated computer vision technology combined with scientific body-clock modeling. It provides a real-time fatigue and distraction risk status to operators via unobtrusive, operator-friendly displays. It delivers reliable, audible, and visible alerts of fatigue and traffic-related events to avert imminent accidents and features a web platform to continuously assess in real time the fatigue risks of individual operators and the complete fleet, allowing intervention, if necessary.



**Increase operator productivity**



**Reduce incidents and accidents**



**Increase operator awareness**



**Reduce fatigue and distraction-related hazardous behavior**



**Reduce direct and indirect operating costs**



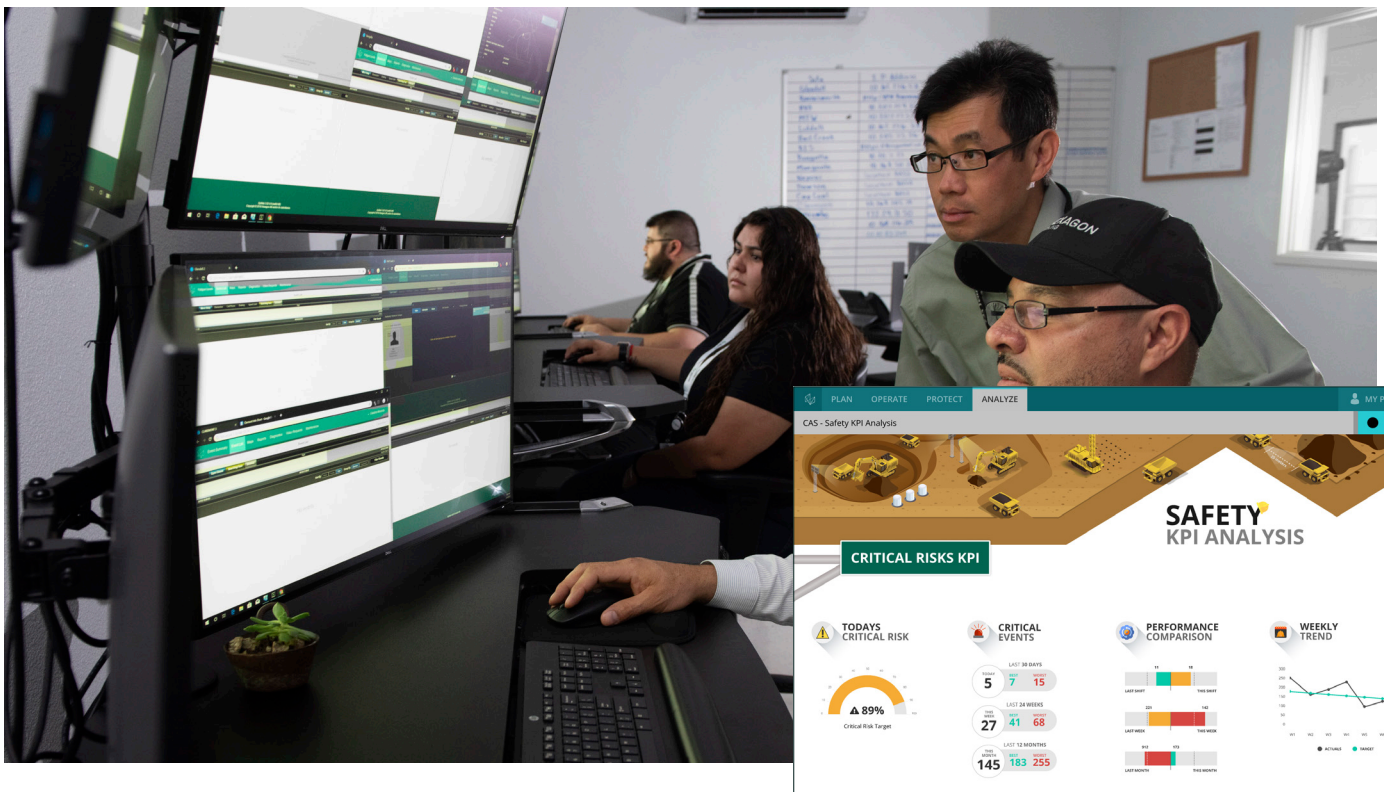
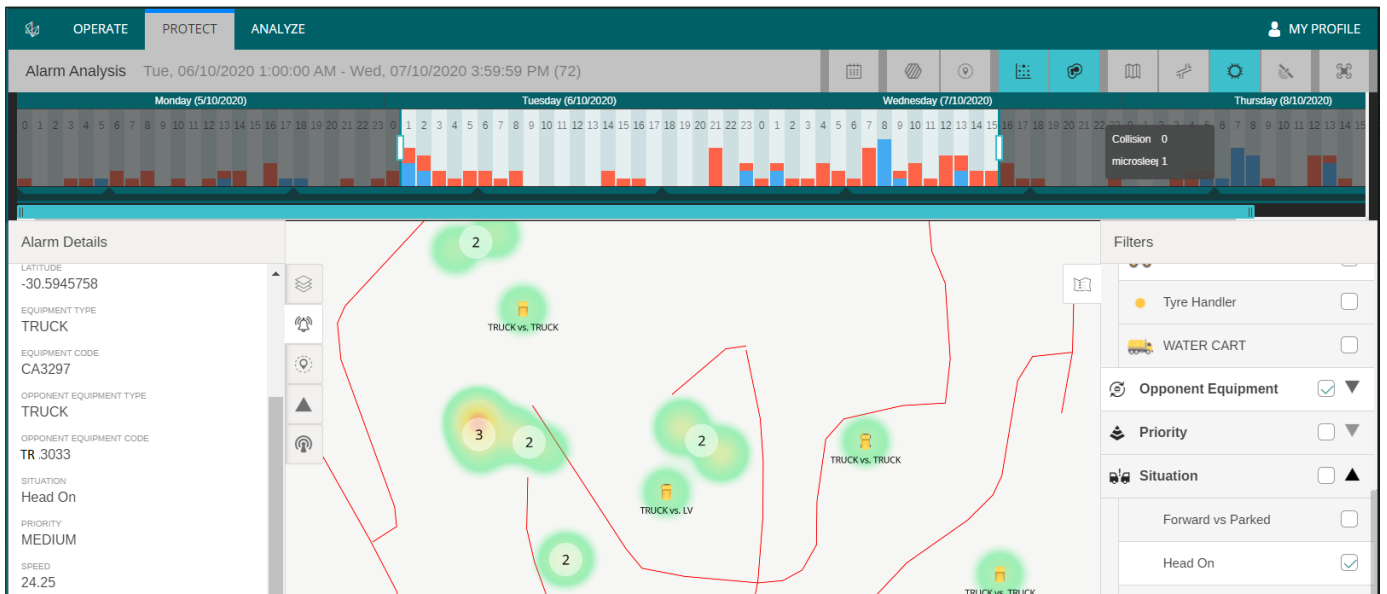
**Create a safer mine environment**



## Reporting, Analytics and Monitoring

MineProtect's web-based reporting platforms adds a powerful layer of safety. Extending OAS and CAS from the vehicles connecting live and retrospective data via dashboards, providing insight into critical control risk events.

Through integrations with Hexagon solutions, HxGN Remote Monitoring Center offers enhanced categorization of OAS & CAS events accelerating your data from prevention to prediction.





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# About Hexagon

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Mining division solves surface and underground mine challenges with proven technologies for planning, operations and safety.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 4.6bn. Learn more at [hexagon.com](https://hexagon.com) and follow us @HexagonAB.

Visit us at [hexagonmining.com](https://hexagonmining.com)



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