



HEXAGON

empowering an autonomous future

Digital Solutions - Mining

Connecting Your Data and You.

SOLUTIONS FOR THE LIFE OF YOUR MINE



Planning and scheduling optimization



Real-time slope monitoring



UAVs for inspection, stockpile management, and safety monitoring

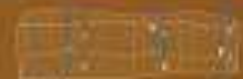


Fatigue Monitoring

Fleet management & health



Blast movement monitoring and analysis



Quantify post-blast fragmentation



Diverse mobile connected and protected workplace

Integrated remote operations



24/7 support & on-going partner development

Digitized geological data



Equipment for survey & slope monitoring

IoT sensors for real time data capture



Operator Assist



D&B precision for surface or underground



Real-time measurement of particle size distribution



Measure size to enhance real-time process control



Plant designs for maximum production



Cloud based data HUB



24/7 SERVICES

EXPLORE

PLAN

PRODUCE

OPERATE

PROTECT

SURVEY

MONITOR

ANALYZE

REPORT

OPTIMIZE

Underground task manager





Mining underground
is hard.

We understand.

HxGN MinePlan

Plan your mine from exploration to production



Exploration

Everything needed by an exploration geologist to store, manage and analyze drillhole data



Modeling

Perform geological interpretation of your deposit and generate an accurate block model



Design

3D visualization and engineering CAD tools for open pit, underground and quarry, optimization and design



Scheduling

Optimization using haulage and activity-based Gantt-chart scheduling



Production

Rapid, integrated, and standardized software for grade control, production planning and reconciliation



HxGN MineOperate

Control the data from your systems, people and processes to maximize your mine's productivity



Fleet Management

An open pit and underground solution that helps managers track all their assets



Machine Guidance

A high-precision guidance solution for dozers, drills and loading equipment



Asset Health

A machine health platform providing sensor and alarm information



Fragmentation Analysis

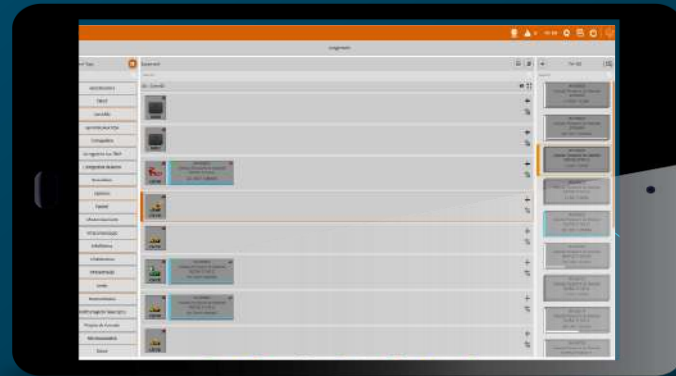
Improve process efficiency such as crusher throughput and blasting with particle size distribution analysis



Operator Assist

An integrated solution that helps operators find the optimum reversing path for a truck to follow to the shovel

Underground Management Solution



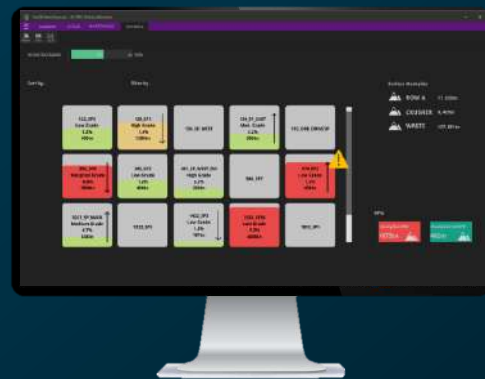
Simple, drag & drop task assignments to equipment



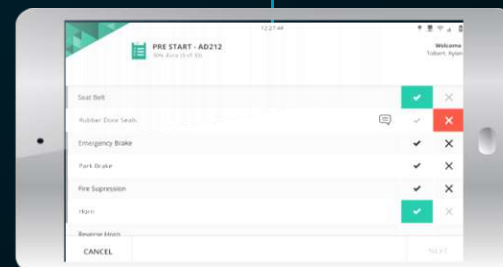
In-field digital production data, and time usage capture



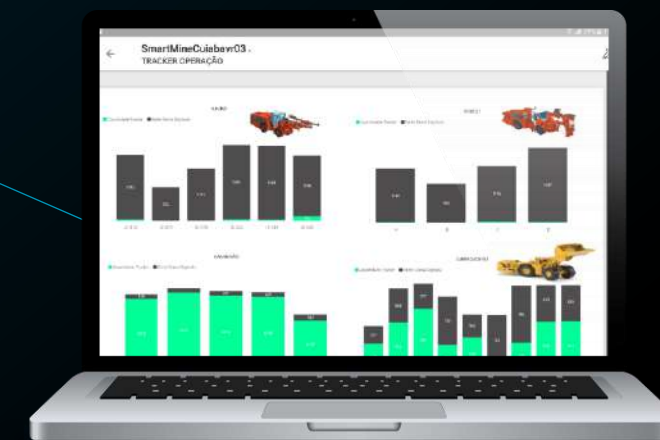
Supervisor-specific mobile applications to ensure shift KPIs are hit



Live shift analytics including Haulage Tracking & Dynamic SP balances



Asset Health and Maintenance module for full fleet management and service scheduling



SQL dB reporting platform / BI

What value does an UG FMS deliver?

Pain



Unreliable
maintenance records

Value lost / Pain of the cost

Loss of operation time



Trucks unaware of
next load point

Unable to achieve production plan



Tedious office
reporting process

Inefficient use of time



Consumable stock
level unknown

Loss of production



Stockpile material
grade unreliable

Poor recovery at milling stage

How does UG PRO solve these issues?

Pain Point /



Value Unreliable maintenance records

Solution

Capture, storage & reporting of equipment checklist



Trucks unaware of next load point

Agile shift-level task planning



Tedious office reporting process

Full near-real time SQL based reporting suite



Consumable stock level unknown

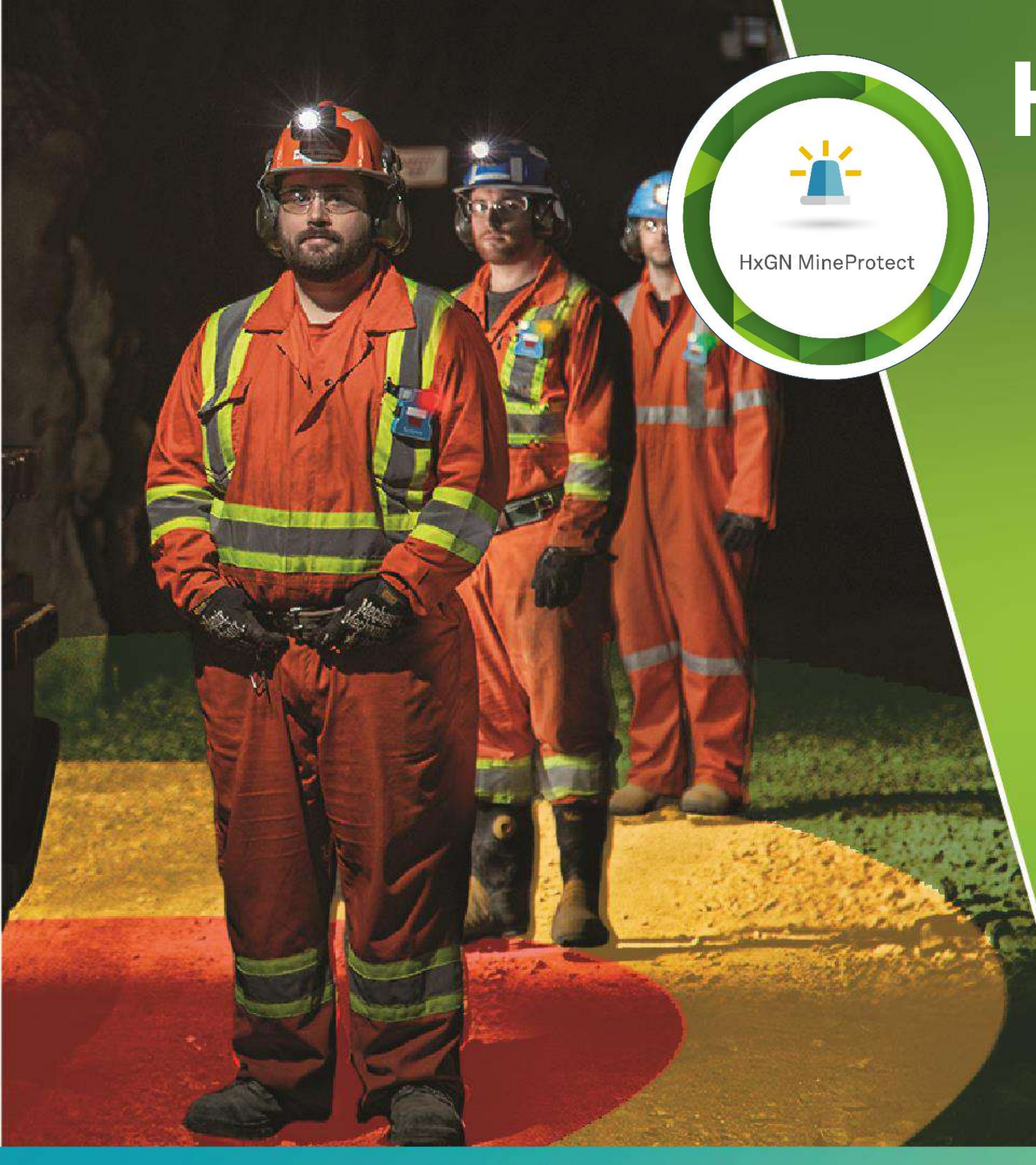
In-field capture of daily used consumables



Stockpile material grade unreliable

Precise calculation of material





HxGN MineProtect

Keep your most important assets safe without compromising efficiency or results



Collision Avoidance

360-degree proximity detection that protects vehicles, equipment and operators



Visual Awareness

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



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

What value does underground collision avoidance deliver ?

Pain

point



Blind Spots around pieces of equipment

Value lost / Pain of the cost

Fatality | Temporary mine closure



Metal-to-metal contacts
Metal-to-wall

Increased costs | Equipment downtime



Injuries or fatalities

Temporary mine closure



Cluttered cabin

Hindered ergonomics



Multiple servers

Higher cost | Poor data consistency

How does UG CAS solve these issues?

Pain Point / Value

Blind Spots

Solution

Eliminate Blind Spots with triangulation of sensors.



Metal-to-metal
Metal-to-wall

Detects other vehicles and triggers an alarm



Injuries or fatalities

360 degrees awareness



Cluttered cabin

CAS integrates with UG PRO



Multiple servers

Data consistency



HxGN Survey & Monitoring

Measurement capture and slope monitoring solutions for more productive, safer mines



Reality Capture

High-resolution 3D point clouds & images for precise survey



Slope Stability

Rapidly measure slope movements with sub-millimeter accuracy over large areas for the provision of real-time alerts



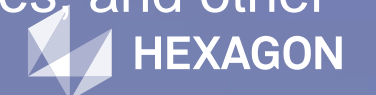
Monitoring Hub

Integrated slope stability platform for mine monitoring. Combines, analyzes, visualizes and cross checks all measurements by monitoring sensors in a mine



Landslide Detection

Detects, tracks, and analyzes the slightest movements from rockfalls, avalanches, and other fast-moving landslide debris flow





HxGN MineEnterprise

Data analytics for safety and performance indicators.



Thank you.



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