



A flexible, scalable, and integrable FMS that adapts to your current and future mine.

Connecting **Every** Miner. **Every** Asset. **Every** Zone.

CONTENTS

DISCLAIMER

The information contained in this document has been prepared by Mine Site Technologies Pty Ltd (MST Global) [ABN 93 002 961 953]. Every effort has been made by MST Global to ensure that the content is accurate, relevant, and up to date at the time of publication. However, the information provided is subject to change without notice. All technical information is presented in summary form and is not intended to be exhaustive.

This document is distributed on the understanding that MST Global is not responsible for any outcomes resulting from actions taken based on the information contained herein. MST Global does not accept liability for any errors, omissions, or damages arising from misrepresentation, misinterpretation, or any deviation from the provided information or instructions. Recipients are encouraged to independently assess the suitability of the information for their specific purposes prior to use.

• MANAGING UNDERGROUND OPERATIONS.	3
• HELIX DISPATCH. ◦ FROM BASIC TO ADVANCED MANAGEMENT.	5
• FEATURES AND BENEFITS. ◦ SHIFT SCHEDULING AND EXECUTION. ◦ MATERIAL MANAGEMENT. ◦ SAFETY MANAGEMENT. ◦ SIC / DRAW CARDS.	6
• DISPATCH LITE / PRO. ◦ ONE SOLUTION FOR TWO NEEDS.	7
• HELIX DISPATCH LITE. ◦ AN ENTRY-LEVEL SOLUTION.	9
• HELIX DISPATCH PRO. ◦ FOR REAL-TIME FLEET MANAGEMENT.	10
• PRODUCTION CYCLE MANAGEMENT:	11
• HELIX AND COMPONENTS. ◦ THE HELIX PLATFORM / SENSE HUB / PTX7.	12
• TRACKING - VISUALISATION.	13
• SUMMARY - MAIN IDEAS.	14

THE CHAOTIC NATURE OF MANAGING UNDERGROUND OPERATIONS

Underground environments are dynamic, complex, and constantly changing.

Making decisions with incomplete or delayed information leads to lost production, higher costs, and unnecessary risk.



DELAYED INFORMATION

Decisions are made too late to be effective.



POOR VISIBILITY

Limited understanding of what is happening underground right now.



UNEXPECTED UPSETS

Breakdowns, no-show operators, and changing priorities disrupt plans.



FRAGMENTED DATA

Multiple sources of truth create confusion and reduce confidence.



UNEXPECTED OUTCOMES

Inability to accurately predict production performance.



DISCONNECTED OPERATIONS

People, equipment, and locations are not co-ordinated.



From chaos to control.
Turn information into action.

HELIX Dispatch brings real-time visibility, coordination, and control to underground operations - helping your team make better decisions, faster, and achieve more every shift.



LIMITED REAL-TIME OPERATIONAL VISIBILITY

Supervisors lack a clear understanding of what is happening underground.

- Which equipment is operating, delayed, idle, or down?
- What work is currently in progress?
- Which faces are available, delayed, or awaiting the next activity?
- Where are the operational bottlenecks?



MAXIMISING EQUIPMENT UTILISATION

Mobile equipment is a major investment.

- Low utilisation and excessive idle time.
- Difficulty identifying the causes of lost operating hours.
- Poor coordination between equipment and production locations.



RESPONDING TO OPERATIONAL UPSETS

Underground operations change rapidly.

- Breakdowns, delays, and unavailable faces impact production.
- Priorities change throughout the shift.
- Without timely information, opportunities to recover lost production are missed.



MANAGING THE PRODUCTION CYCLE

Coordinating people, equipment, materials, and locations is complex.

- Hard to track production progress.
- Material movement and inventories are difficult to manage.
- Challenges ensuring material reaches the correct destination.
- The mining cycle is not optimised.

HELIX Dispatch ANSWER THE KEY OPERATION QUESTIONS:



What is every piece of equipment doing right now?



How is the shift performing against plan?



What work is currently in progress?



What actions can be taken now to improve outcomes?



Which faces are available, delayed, or awaiting the next activity?



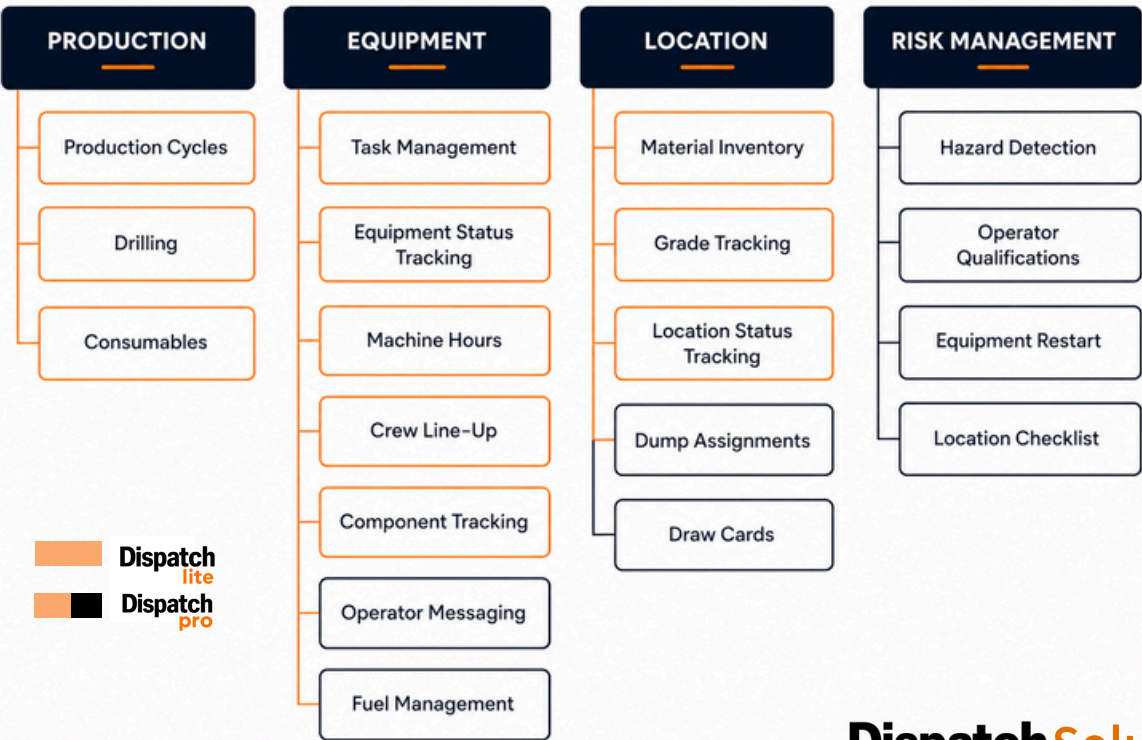
HELIX Dispatch ... Simple ... Proven ... Scalable

Most existing underground mining operations have already invested in communications and tracking systems to improve visibility of personnel and assets underground. Fleet management is the next step in transforming that visibility into operational productivity.

HELIX Dispatch provides the tools to manage production activities, equipment utilisation, material movement, and shift execution in real time. Built specifically for underground mining, it enables supervisors and dispatchers to make informed decisions that improve production outcomes while reducing operational inefficiencies.

HELIX Dispatch is equipment agnostic and works with any underground mining method and any wireless underground network infrastructure to:

- Optimise equipment efficiency, performance, and utilisation.
- Streamline operations.
- Improve equipment operator safety with hazard tracking, digitised equipment prestart and location-based safety checklists.
- Improved productivity, operational efficiency, and timely material extraction.
- Optimized resource management across all mining operations.
- Informed decision-making for rapid problem-solving.
- Ensure safety in mining operations.



Features and Benefits:

Shift scheduling and execution.

Gain complete operational visibility to be prepared for any changes or unforeseen events in the schedule:

- Generate a line-up (roster) for the upcoming shift.
- Manage task lists for the entire fleet using Short Interval Control. (SIC)
- Communicate with operators via text messaging.
- Maintain up-to-date equipment and location availabilities.

Material Management:

Material Management solutions provide a complete representation of the ore and waste materials across your underground and surface operations.

- Maintaining current inventory levels, grades, and densities for all production locations as material is moved within the mine and on surface.
- Performing survey adjustments manually or in bulk.
- Historical grade and density auditing capabilities.
- Automatic dump assignments for LHDs and trucks based on loaded material and dump availability.
- Operator alerts to prevent mixing ore and waste materials.

Safety Management:

It supports mining operations by identifying various conditions that pose risks to operator safety.

- It ensures timely notification and contributes to the prevention of unsafe operation of equipment or working conditions.
- Digital equipment and location safety checklists with immediate feedback for operators and notification to the office.
- Location hazard identification and alerts for equipment operators.
- Leveraging operator training records to control access to the operator's edge application.

Short Interval Control.

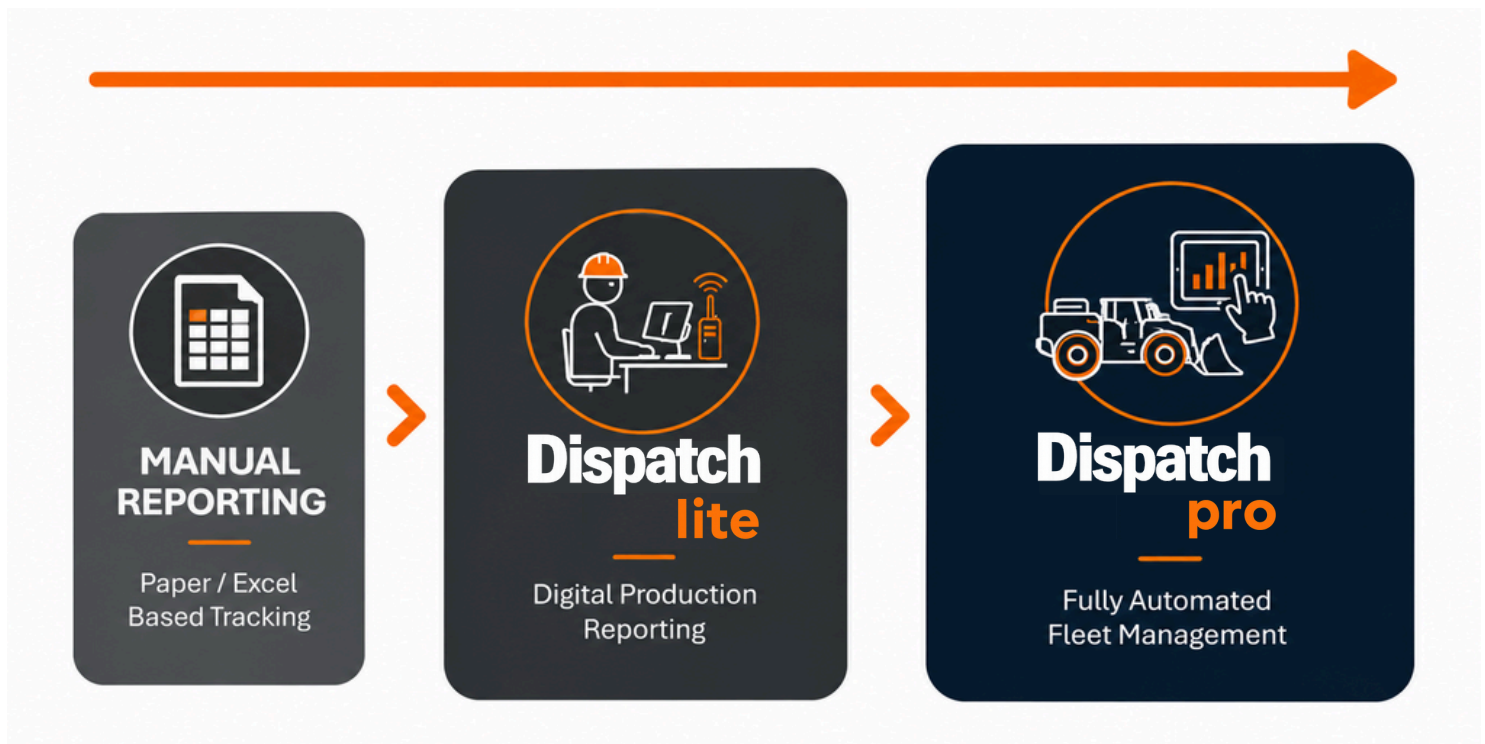
Short Interval Control (SIC) features enable production, development, and auxiliary dispatchers to manage task priorities for the entire fleet:

- Import task schedules, distribute them to the fleet, and monitor real-time status updates throughout the shift.
- Scheduling and monitoring activities across the entire fleet:
 - Receiving alerts when activities are running behind schedule.
 - Distributing individual, prioritized lists of activities to equipment operators for the shift.
 - Identifying tunnel development cycle inefficiencies and reducing delays at the working face.
 - Integration with Drilling and Consumables records for broad productivity reporting against equipment activities.

Draw Cards:

The optional Draw Cards feature enables dispatchers to distribute a block caving draw points extraction plan to LHD equipment operators.

- Present LHD operators with individual assignments according to the draw point extraction plan.
 - Receive compliance alerts when LHD operators deviate from their assignments.
 - Simultaneously monitor extraction progress for all active draw points.
 - Export draw point production actuals for use in third-party cave management systems.



HELIX Dispatch is a flexible, scalable, and integrable fleet management system (FMS) that adapts to your current and future needs.

- This flexibility enables HELIX Dispatch to scale its fleet management capabilities, from **Dispatch lite** in initial phases to **Dispatch pro** that delivers the full FMS solution for the mine.
- Likewise, this flexibility allows it to integrate other solutions specific to underground mining, such as tracking, automation, telemetry, IP telephony, IoT sensors, and much more.

This allows HELIX Dispatch to achieve your goals, according to your current and future needs.

Increase production.

Increase face utilisation.

Reduce costs.

Minimize waste.

Improve safety.

Dispatch lite

The first step towards more productive operation:

Fast deployment and essential FMS capabilities:

- Control room-based FMS, with no field hardware requirements.
- Structured production tracking, task management, and reporting from day one.
- Minimal change management for operators.

Operational Optimization:

- Monitoring and management of shift plan execution and task management.
- Identify inefficiencies in the mining cycle, allowing for optimization of equipment utilization.

Operation data, collecting and reporting:

- It allows control room staff to collect, manage, analyze, and present historical operational information in reports, dashboards, and productivity metrics.

Short Interval Control:

- Dispatchers manage task lists and fleet priorities.
- Monitor progress against shift plans.

Production tracking:

- Production cycle capture by dispatchers in the control room.
- Recording of material movement and equipment status.

Empower dispatchers and supervisors:

- Monitor progress toward production targets.
- Manage the task list for the entire fleet.
- Access a single source of information and visualization for underground operations.

Dispatch pro

Expands the FMS solution to equipment operators:

Real-time data monitoring, visualization, and capture enables:

- Understanding the operational status of the production site and work area.
- Automatic detection of the loading/transport cycle and automatic identification of equipment status.
- Equipment and personnel location and availability.
- Productivity and dynamic task allocation to make scheduling adjustments according to operating conditions.
- Equipment tracking to increase data accuracy and minimize operator intervention during operations.

Equipment-agnostic supervision:

- Retrieving payload data for capturing loading and transport cycles.
- Automatic control of machine operating hours and fuel level monitoring and alerts.
- Telemetry and vital signs for maintenance scheduling.

Operator communication and integration via touchscreen:

- Pre-start checklists, site safety checklists, task lists and workflows, equipment status, and more.
- Communication with operators via two-way text messaging.

As an entry-level solution, the HELIX Dispatch lite module is easy to implement and simple to use, while improving the quality and reliability of production reports, enabling rapid implementation and essential functionality for the fleet management system (FMS).

Main characteristics Dispatch lite:

Fast deployment and essential FMS capabilities:

- Control room-based FMS, with no field hardware requirements.
- Structured production tracking, task management, and reporting from day one.
- Minimal change management for operators.

Operational Optimization:

- Monitoring and management of shift plan execution and task management.
- Identify inefficiencies in the mining cycle, allowing for optimisation of equipment utilization.

Operation data, collecting and reporting:

- It allows control room staff to collect, manage, analyse, and present historical operational information in reports, dashboards, and productivity metrics.

Short Interval Control:

- Dispatchers manage task lists and fleet priorities.
- Monitor progress against shift plans.

Production tracking:

- Production cycle capture by dispatchers in the control room.
- Recording of material movement and equipment status.

Empower dispatchers and supervisors to monitor and manage shift plan execution in real time.

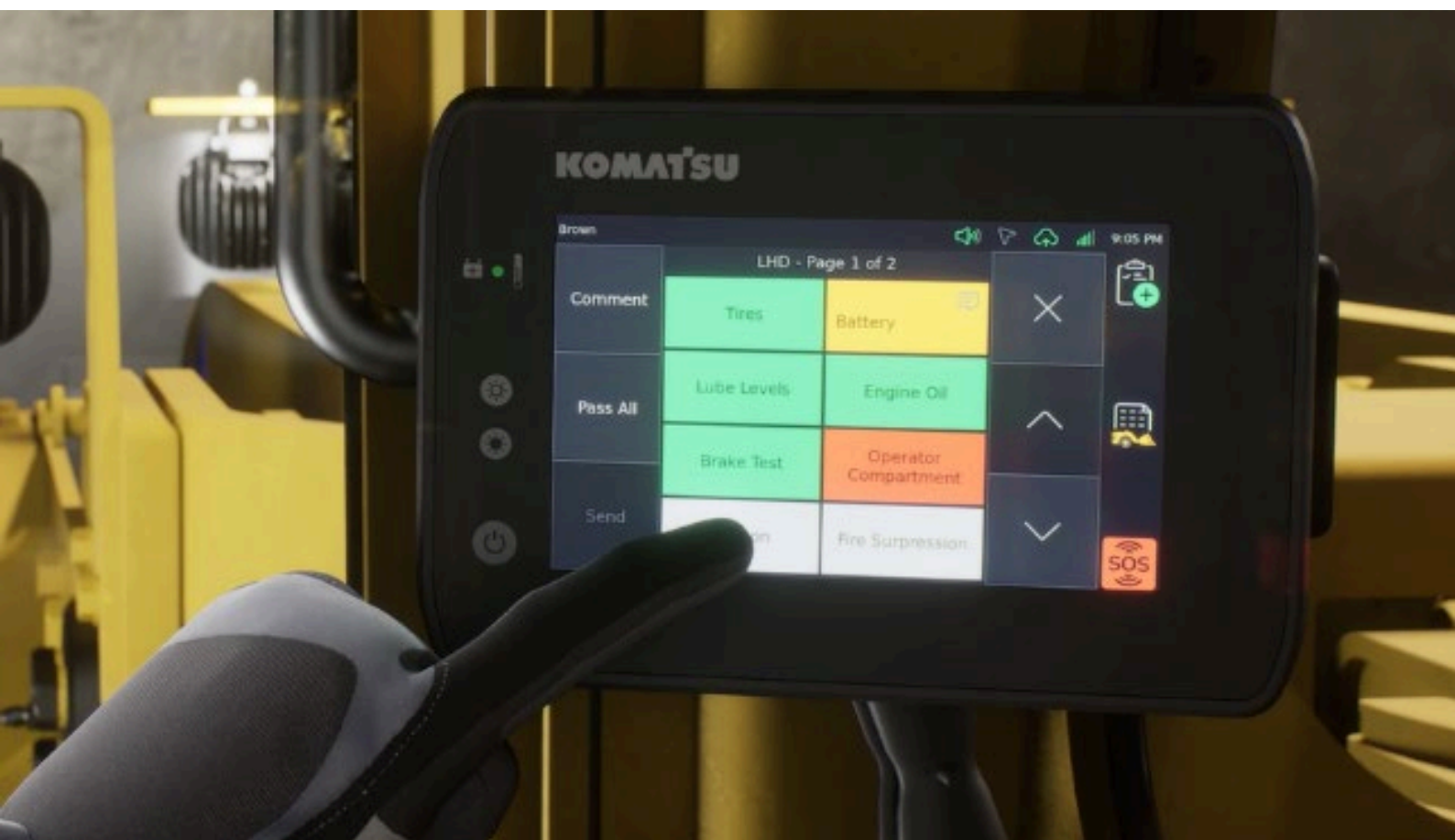
- Monitor progress toward production targets.
- Manage the task list for the entire fleet.
- Access a single source of information and visualisation for underground operations.



HELIX Dispatch pro is designed for real-time fleet management in complex or high-volume underground mining operations.

Main characteristics Dispatch pro:

- **Real-time data monitoring, visualisation, and capture enables:**
 - Understanding the operational status of the production site and work area.
 - Automatic detection of the loading/transport cycle and automatic identification of equipment status.
 - Equipment and personnel location and availability.
 - Productivity and dynamic task allocation to make scheduling adjustments according to operating conditions.
 - Equipment tracking to increase data accuracy and minimise operator intervention during operations.
- **Equipment-agnostic supervision:**
 - Retrieving payload data for capturing loading and transport cycles.
 - Automatic control of machine operating hours and fuel level monitoring and alerts.
 - Telemetry and vital signs for maintenance scheduling.
- **Operator communication and integration via touchscreen:**
 - Pre-start checklists, site safety checklists, task lists and workflows, equipment status, and more.
 - Communication with operators via two-way text messaging.





HELIX Dispatch's production cycle management encompasses the LHDs and trucks involved, from basic to advanced management.



HELIX Dispatch *pro*'s production cycle management allows:

- **Automatic haul cycle capture:**
 - Capture all material movements (including outside of network coverage) with minimal operator input.
 - Automatic transfer of material properties between LHDs and trucks.
 - LHD OEM payload support.
- **Track multiple materials:**
 - Define multiple material inventories for production locations (locations and qualities).
 - Only make select material inventories available for loading.
 - Account for ore dilution events.
 - Material inventories are adjusted in real-time as material is moved.
- **Ensure material is hauled to the correct location:**
 - Operators can be given a dump location assignment based on loaded material and dump availability.

Integration with the HELIX solution and Essential Components:



3D Connect
Interactive Spatial
Insights



Sentinel
Enhanced Safety
Monitoring



Intelligent Control
Process Automation



**Smart
Monitoring**
IoT Network



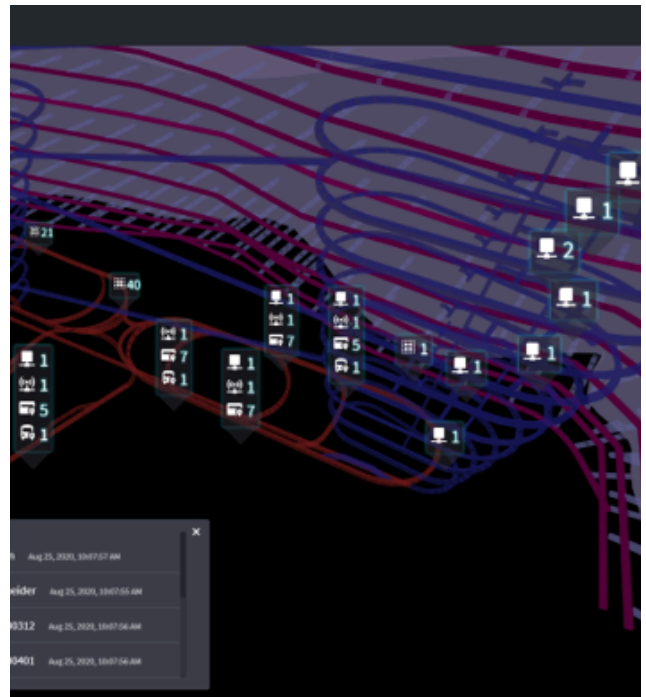
Dispatch
Optimise Fleet
Management



Telemetry
Track Equipment
Health

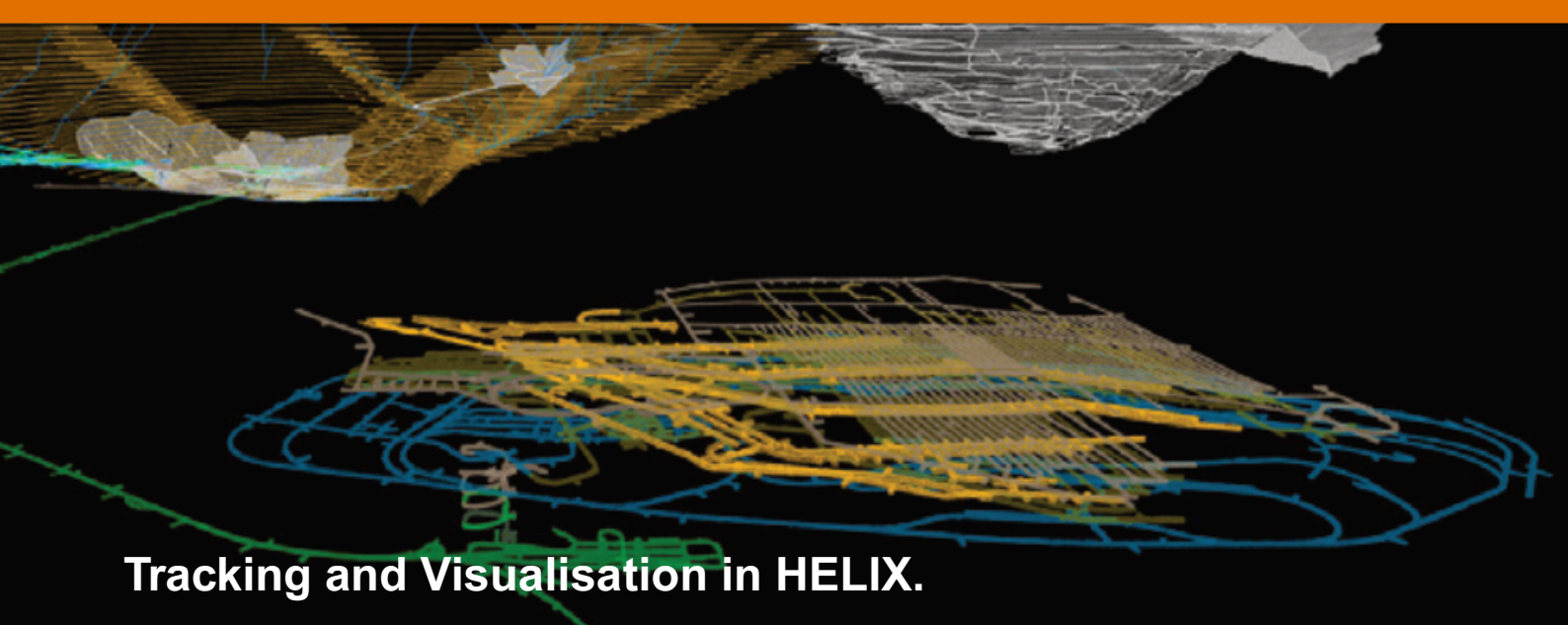
The HELIX platform is a comprehensive and versatile solution designed to enhance mining operations through its modular capabilities:

- Each module, including HELIX Core, Automation, Sentinel, Telemetry, Sustainability, IoT, 3D Connect, BI, Safety and Dispatch, provides specialised functionalities to optimise different aspects of mining.
- From real-time data capture and advanced automation to environmental monitoring and fleet management, HELIX integrates cutting-edge technology to streamline processes, improve safety, and drive efficiency.
- Its flexible digital geospatial twin allows for seamless integration and customisation, making HELIX a powerful tool for modern mining operations.



Essential Components:

- **SENSA hub:**
 - The SENSA hub seamlessly links vehicle interfaced to the HELIX platform for advanced remote monitoring and diagnostics of vehicle parameters and alarms.
- **PTX7:**
 - The PTX7 is a ruggedised edge computer which serves as the operator's touch screen interface to HELIX Dispatch.



Tracking and Visualisation in HELIX.

HELIX 3D Connect provides a geospatial digital twin of your mining operations with advanced position tracking technologies:

- **Multi-Positioning Technology:**
 - Utilise various positioning technologies like Wi-Fi, UWB, BLE, and GNSS with varying Quality of Positioning (QoP) options.
- **Customisable Insights:**
 - Create tailored dashboards and reports with relevant data for various user needs.
- **Scalable Tracking Views:**
 - Adjust the tracking view to match your specific requirements.
- **Direct Messaging:**
 - Streamline communication through in-app messaging directly on the tracking map.
- **Surface & Underground Visibility:**
 - Gain a comprehensive perspective by including surface maps alongside underground activities.
- **3D Visualisation:**
 - Experience a 3D representation of your entire mining environment (surface & underground) with support for different geospatial coordinate systems.
- **Real-time Tracking & Reverse Tracking:**
 - Track assets in real-time and reconstruct their historical movement outside communication range (reverse tracking).
- **Geofencing:**
 - Implement extensive geofencing capabilities with support zones and beacons.

Summary



Why Mines Choose HELIX Dispatch:

- Underground Mining Focused.
- Real-Time Decision Support.
- Seamless HELIX Integration.
- Scalable from Lite to Pro.
- Equipment Agnostic.



Key Functions:

- Production Tracking.
- Fleet Management.
- Material Management.
- Short Interval Control.
- Draw Cards.
- Safety Management.
- Shift Execution.
- Equipment Monitoring.



Operational Benefits:

- Purpose-built for Underground Mining
- Real-Time Decision Support.
- Scalable from 'lite' to 'pro'.
- Equipment Agnostic.
- Seamless HELIX Integration.
 - Telemetry.
 - 3D Connect.
 - Smart Monitoring.
 - Intelligent Control
 - Tracking people.



A flexible, scalable, and integrable FMS that adapts to your current and future mine.



Looking for solutions to improve safety, productivity, and operational performance in your mine?

www.mstglobal.com

- Visit the MST Global website to explore innovative technologies designed for underground mining and tunnelling.
- Discover integrated solutions for communications, automation, IoT, fleet management, personnel tracking, and digital operations, backed by real-world customer success stories, technical resources, product information, and the latest industry innovations.
- Whether you're evaluating new technologies or planning your next digital transformation project, MST Global provides the insights and expertise to help you make informed decisions.

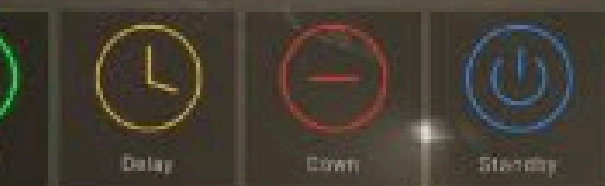
LinkedIn:

- Stay connected with MST Global on LinkedIn and be the first to discover our latest innovations in underground mining technology.
- Follow us for product updates, customer success stories, industry insights, event highlights, expert perspectives, and the latest advancements in automation, connectivity, safety, and digital transformation.
- Join our community and stay informed about the technologies shaping the future of mining.

YouTube channel:

- Explore MST Global's latest innovations in underground mining technology.
- Discover videos featuring communication networks, automation, fleet management, safety solutions, IoT, real-world customer success stories, product demonstrations, and digital technologies designed to improve mine safety, efficiency, and productivity.

Consult with our experts on how to improve underground safety and productivity through the use of HELIX Dispatch in your mine.



A Komatsu technology brand

APAC

EMEA

AMERICAS

ASIA