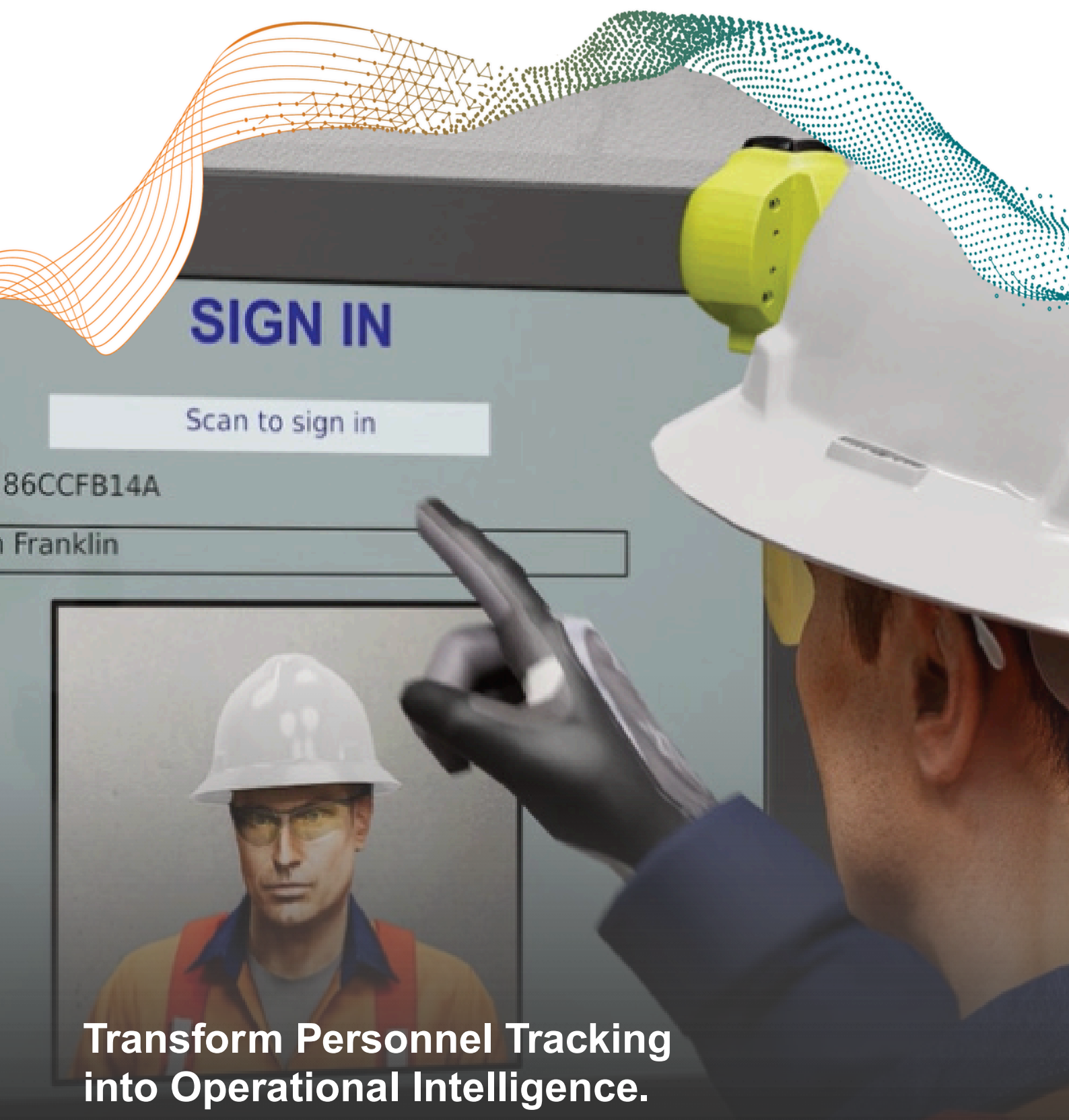




Connecting **Every** Miner. **Every** Asset. **Every** Zone.

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Know where your workforce is: Improve Safety. Increase Productivity.

Real-time workforce visibility for safer, smarter underground operations.

HELIX Sentinel is MST's intelligent digital tag-board solution that provides real-time visibility of underground personnel through live dashboards and strategically located displays.

Built on the HELIX platform, Sentinel transforms workforce location data into actionable operational intelligence. It helps mining operations monitor personnel movement, improve shift management, enforce safety procedures, and maintain complete accountability across underground operations.

Instead of relying on traditional tag boards, HELIX Sentinel delivers a dynamic digital environment where supervisors always know who is underground, where they are, and whether they are operating within established safety rules.

Solution Description:

HELIX Sentinel combines electronic sign-in, personnel tracking, and intelligent monitoring into a single platform designed specifically for underground mining operations.

The system continuously monitors workforce activity using kiosk registrations and real-time location information, automatically identifying situations that require attention, including:

- Personnel entering restricted areas
- Missing sign-ins
- Unassigned tracking tags
- Workers exceeding authorized underground time
- Personnel not detected within their assigned zones

Information is displayed through configurable electronic tag boards that provide operators and supervisors with immediate situational awareness and faster decision-making.





USE Cases.

Below are key use cases that empower the mine to monitor and enhance operational safety:

- **Use Case 1: Unassigned Tag Alert.**

- Scenario: Personnel with an unassigned tag enters a monitored zone.
 - Electronic tag-board swiftly presents unassigned tags on the screen as personnel with unassigned tags enter monitored zones. This real-time visibility provides control room personnel with information that can therefore ensure adherence to mine processes, enabling quick and efficient response to potential safety concerns.

- **Use Case 2: Zone Time Compliance.**

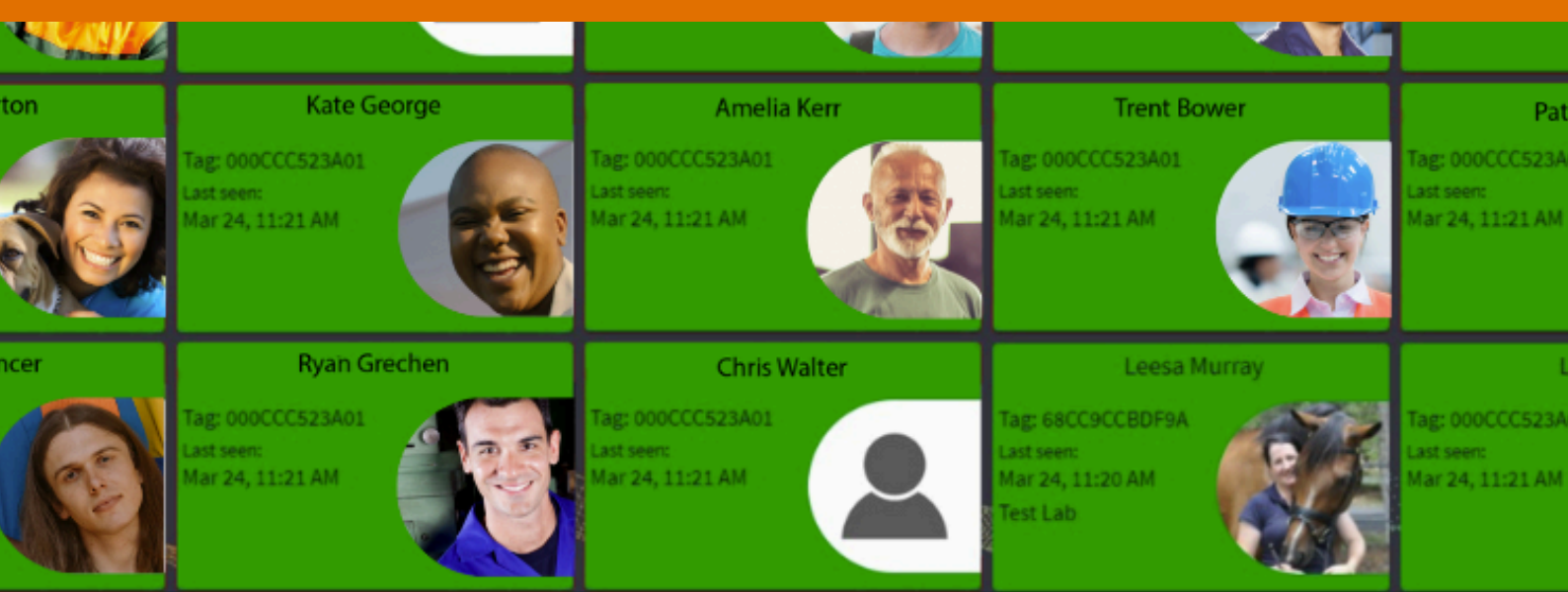
- Scenario: Ensuring compliance with mine policies regarding time spent in specific zones.
 - HELIX Sentinel enables configuration of time limits for staying underground or within specific zone groups. In the event of a breach, the electronic tag-board swiftly displays the non-compliant personnel, allowing for proactive intervention to maintain safety protocols and prevent prolonged stays underground. Additionally, the system extends its monitoring capabilities to ensure personnel adhere to shift schedules, promptly identifying personnel overstaying their specified shift end times

- **Use Case 3: Kiosk Sign-In Monitoring.**

- Scenario: Enforcing a mandatory sign-in policy for personnel entering underground or specific zones.
 - The electronic tag-board actively monitors personnel entries through kiosks. If any personnel are detected without proper sign-in, the system notifies relevant authorities. This robust tracking mechanism ensures comprehensive monitoring of individuals and enhances overall safety measures.

- **Use Case 4: Zone Presence Tracking.**

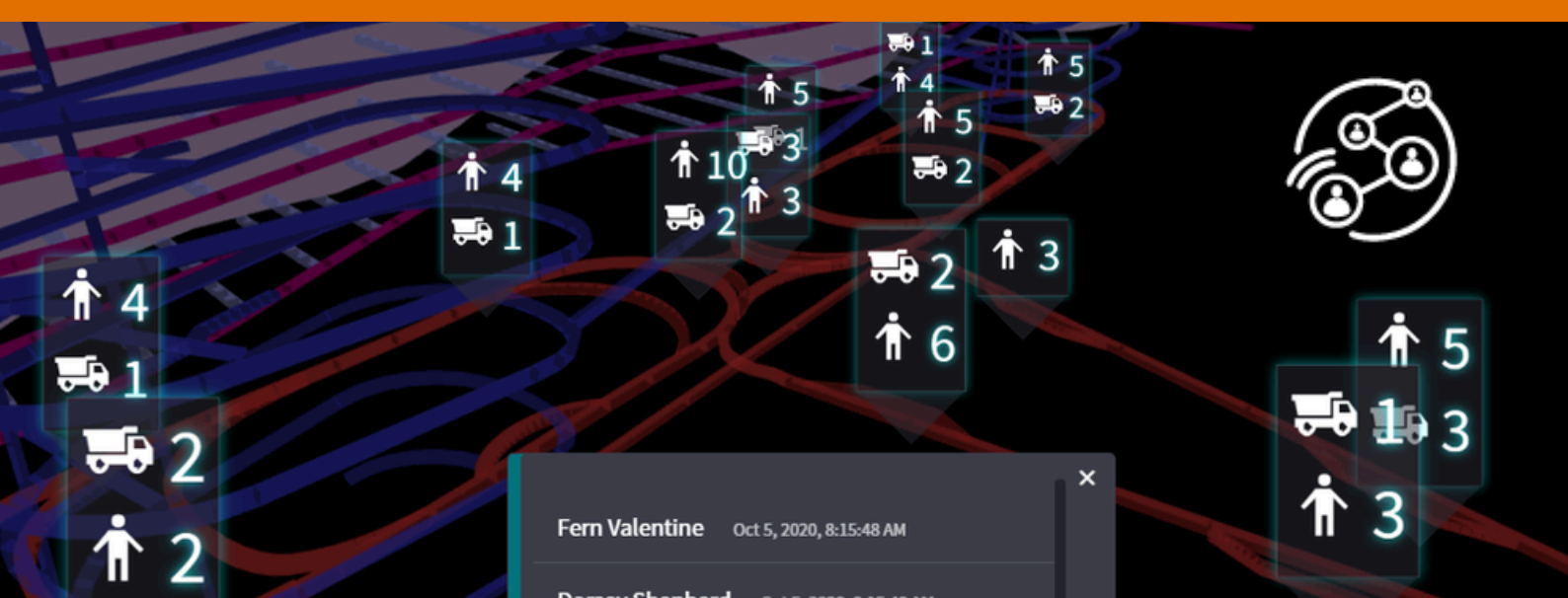
- Scenario: Detecting discrepancies in the presence of signed personnel within a zone.
 - If a person has signed into a zone but cannot be tracked within that specific area, the electronic tag-board will promptly highlight the specific personnel. This feature ensures the accuracy of zone-specific tracking, allowing for immediate corrective actions in the event of anomalies.



HELIX **sentinel**

Key Benefits:

- **Real-Time Personnel Visibility:**
 - Instantly monitor the location and distribution of employees and contractors across underground zones, providing continuous operational awareness.
- **Enhanced Safety Control:**
 - Strengthen personnel safety through real-time monitoring, automated alerts, and rapid identification of abnormal situations or exposure to hazardous environments.
- **Workforce Accountability & Traceability:**
 - Maintain complete visibility of personnel throughout every shift with comprehensive tracking history, profile information, and movement records.
- **Data-Driven Workforce Management:**
 - Manage employees and contractors using accurate operational data, including travel time, productive work time, rest periods, and shift duration.
- **Improved Productivity & Operational Efficiency:**
 - Optimize workforce utilization and operational performance by understanding how personnel spend their time underground and identifying opportunities for improvement.
- **Zone-Based Monitoring & Compliance:**
 - Control personnel access and presence within designated areas while supporting underground sign-in procedures, shift duration policies, and operational compliance.
- **Better Operational Decision-Making:**
 - Provide supervisors with intuitive live dashboards and actionable insights that simplify monitoring, accelerate response times, and improve daily operational control.
- **Digital Tagboard Transformation:**
 - Replace or complement traditional manual tag boards with a modern, scalable digital solution fully integrated into mining operations.



User Journey:

Sign-In Process:

- A user begins their work shift by signing in at the HELIX Kiosk located at the mine entrance.
- The electronic tag-board actively records the sign-in information, ensuring real-time tracking initiation

Enter the Mine:

- As the user moves into the designated work area, HELIX Sentinel tracks their location in real-time.
- The electronic tag-board displays the personnel present in each zone, providing a visual representation on strategically deployed screens.

Work in Progress:

- Throughout the work shift, the system continuously monitors personnel locations and activities.
- In case of any discrepancies or safety concerns, proactive warning messages are shown in the E-Tagboard for swift intervention.

Sign-Out Process:

- Upon completing the work shift, the user signs out at the HELIX Kiosk used for sign-out.
- The electronic tag-board updates in real-time, reflecting the personnel's status as they exit the designated work area.



Personnel sign-in at kiosk



Personnel sign-in at kiosk



Personnel sign-out at kiosk



Personnel sign-out at kiosk`



3D Connect
Interactive Spatial
Insights vironment.



Sentinel
Enhanced
Safety
Monitoring



Intelligent Control
Process Automation



Smart Monitoring
IoT Network



Dispatch
Optimise Fleet
Management.



Telemetry
Track Equipment Health

Native Integration with HELIX:

HELIX Sentinel operates as a native application within the HELIX ecosystem.

Integration with HELIX enables:

- Real-time personnel tracking.
- 3D mine visualization.
- Zone-based monitoring.
- Centralized workforce management.
- Multi-site operation monitoring.
- Unified dashboards accessible across the organization.

Because Sentinel shares the same HELIX data environment, personnel information, tracking data, and operational events remain synchronized across all connected systems, creating a single source of operational truth.

Transform your workforce management with MST's HELIX Sentinel:

HELIX Sentinel delivers far more than digital personnel tracking—it provides the operational intelligence needed to improve safety, increase workforce efficiency, and strengthen accountability across your mining operation.



Essential Components:

HELIX 3D:

- HELIX 3D is the foundation platform for HELIX and a prerequisite for all HELIX modules. It manages and monitors your mine's operations, seamlessly integrating with Telemetry to enable remote monitoring and analytics.

HELIX Sentinel:

- Enables real-time tracking of personnel within designated zones through the electronic tagboard interface.
- Additionally, Sentinel offers three flexible configurations to meet the specific needs of your operation:
 1. Signup station: Monitors personnel signed into a zone group for exceeding a specified time limit.
 2. Tracking: Tracks personnel and unassigned tags present in a zone.
 3. Signup station and tracking: Combines both functionalities, monitoring for unassigned tags, missing sign-ins, personnel not detected and exceeding time limits.
- Each section appears as a tab, allowing you to switch between functionalities seamlessly.
- Additionally, the display time can be configured for each section in full-screen mode for hands-free optimal viewing experience.

Optional Components:

Optimize your mine's workflow with the Kiosk, an optional component that provides staff with a convenient way to clock in and out of work areas.

This versatile addition comes in two types:

With a Swipe Card Reader:

- A card reader mechanism allows users to assign tags automatically. This streamlined process eliminates the need to escalate tag changes to supervisors.
- Users can effortlessly manage tag assignments using swipe cards, ensuring a smooth and autonomous workflow.

Without a Swipe Card Reader:

- Tags are pre-assigned for mines not requiring a card reader. In the event of any issues during Sign-In or Sign-Out, the system generates a warning message. This feature allows users to promptly escalate issues to their supervisor for tag assignment changes.

The Offline Kiosk automatically synchronizes with the central system once connectivity is restored, ensuring comprehensive data integrity throughout the process.



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 tunneling.
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- 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.

Talk to our experts about how to improve underground safety and productivity with tracking and HELIX sentinel in your mine.

SIGN IN

Scan to sign in

Tag: 86CCFB14A

John Franklin



A Komatsu technology brand

APAC

EMEA

AMERICAS

ASIA