



## How Software & Technology Improves Mine Health and Safety

Accelerating the Transformation





Pause

## Safety Share

Check for power chargers and cell phones before putting clothes in hot dryers.



# World-class mining equipment



Cutting-edge automation, utilization and electrification



# Technology and Digitalization

Oct 2018



May 2021



Jun 2021



Jul 2021



Nov 2021



Jun 2022



Oct 2022



Nov 2022



Dec 2022



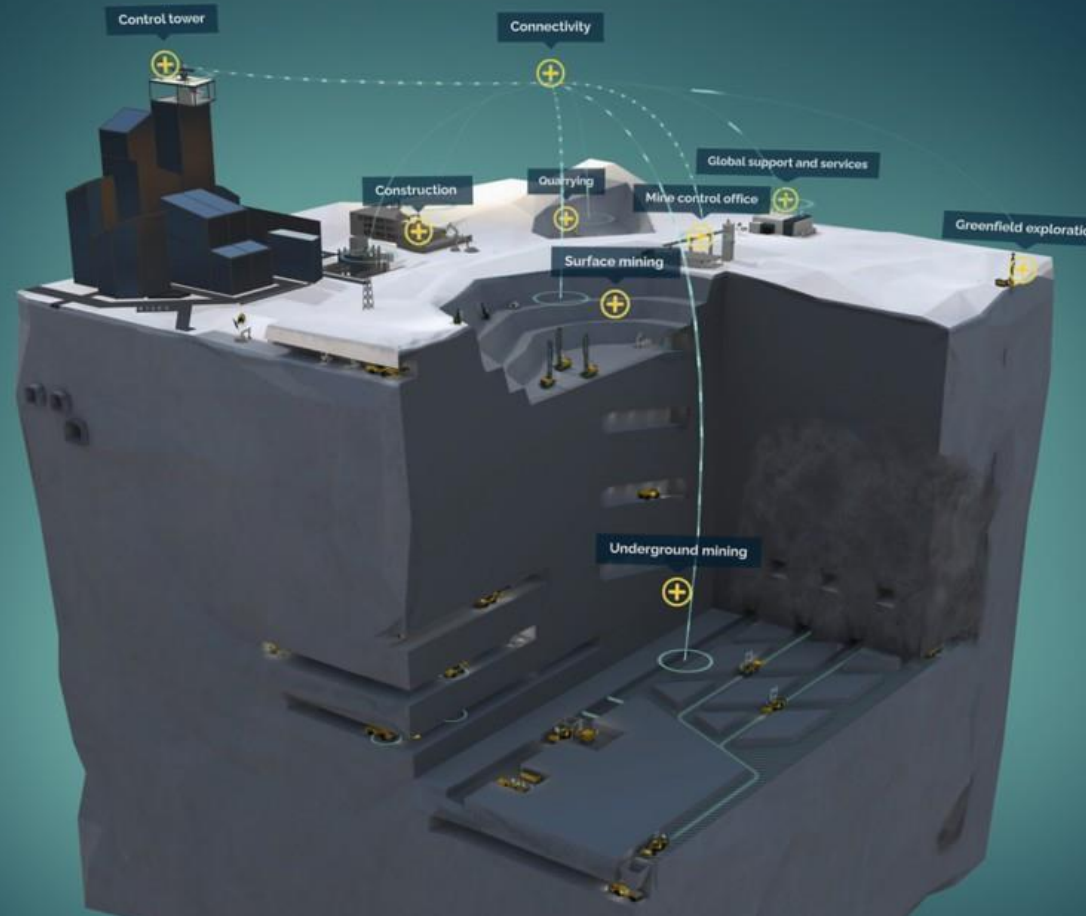
Feb 2023



Automation

Infrastructure

Digital Solutions



## The Epiroc Digital and Automation Ecosystem

- is *Interoperable* with your existing systems and fleets
- enables seamless *Integrated* functionality
- follows an OEM *Agnostic* approach
- is *Modular* and *Expandable*

“From stand alone applications, collision avoidance and single machine automation to an integrated end-to-end insight, control and optimisation solution.”

There is a safer way



Equipment

People

Assets

With the help of digitalization, mining is becoming transparent, efficient and **safer**

Today, we increase productivity and safety every day in more than 100+ mine operations world-wide.

# We are Epiroc Digital Solutions



## MISSION CRITICAL

Software can manage the entire mine operation from the working face to the boardroom to secure world-class productivity and safety.

## FOR ALL PEOPLE

An enabling software. We bring situational awareness and operational insights to personnel in all roles, no and to wherever they are located.

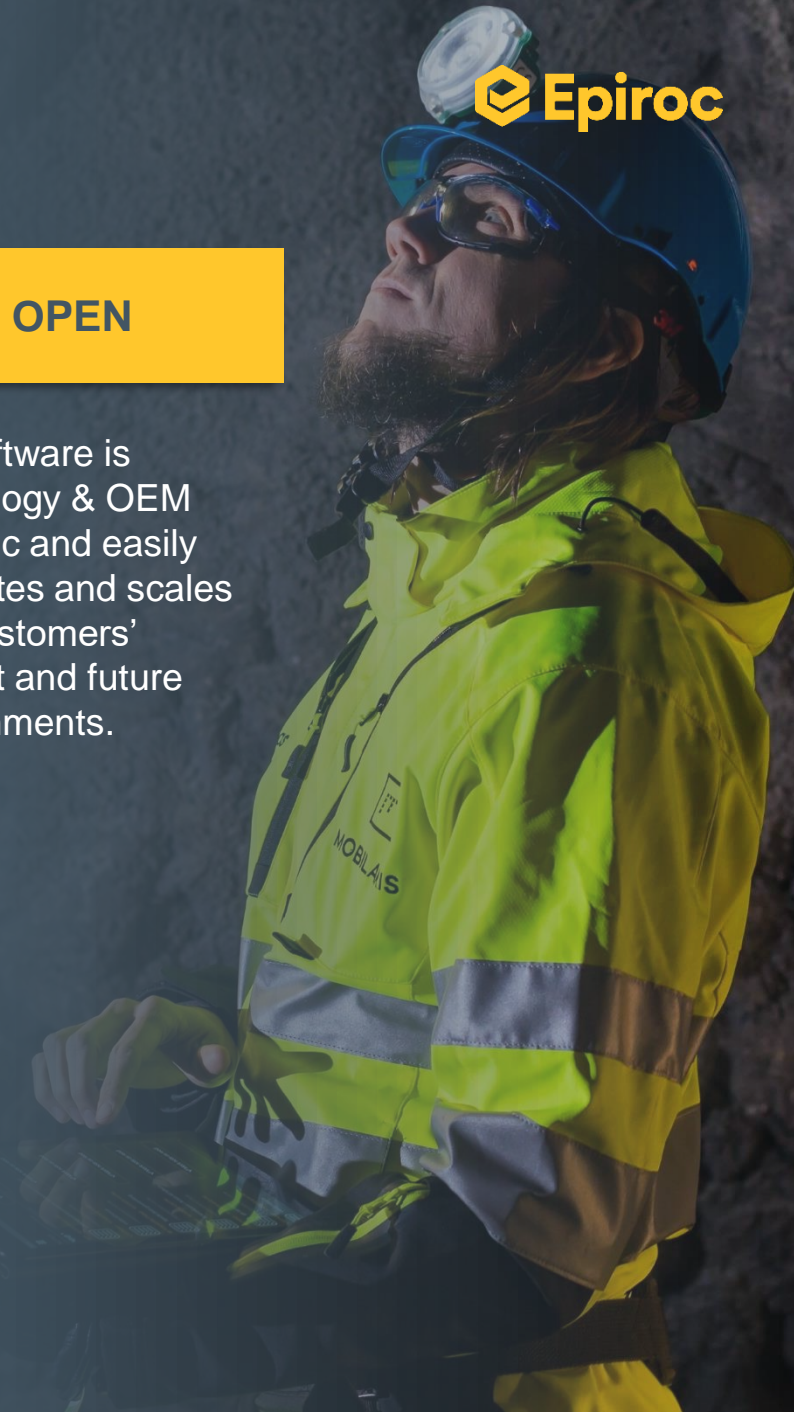
## CREATING ACTION FROM DATA

Our software makes digital tactical, 2-way real-time quality data transfer and visualization easy to make decisions in real-time.

## OPEN

Our software is technology & OEM agnostic and easily integrates and scales with customers' present and future environments.

## THE FUTURE OF DIGITAL MINING



“Digital technology in mining through improved safety, could save an estimated 1,000 lives and 44,000 injuries.”

*Quote: Intergovernmental Forum on Mining, Metals & Sustainable Development*



# Making the mine more transparent

## Mobilaris Situational Awareness™

World class 3D visualization

[ -1321 m ] mobilaris  
-10°25'01"-1224 m

Emergency  
Safe 3 Unsafe 65

Heading  
J11-3 Heading  
Plan  
No plan  
Status  
Charging

Heading  
-3 Stockpile  
Plan  
plan

Heading  
JX-12  
Plan  
No plan  
Status  
Charging

NAME  
MBR21  
OPERATIONAL STATUS  
EV\_DIESEL\_ENG\_STATE 3h 45m 3s ago ago  
ADDRESS  
L

Drill Rig  
2m 49s ago

Production - MBR21

|                     | Wednesday 2 November 2022                                     |       |       |       |       |       |       | Thursday 3 November 2022 |       |       |
|---------------------|---|-------|-------|-------|-------|-------|-------|--------------------------|-------|-------|
|                     | 00:00   | 04:00 | 08:00 | 12:00 | 16:00 | 20:00 | 00:00 | 04:00                    | 08:00 | 12:00 |
| Actual activities   | [Bar chart showing activity from 00:00 to 12:00 on Wednesday] |       |       |       |       |       |       |                          |       |       |
| EV_PUMP_STATE (#2)  | [Bar]   | [Bar] | [Bar] | [Bar] | [Bar] | [Bar] |       |                          |       |       |
| EV_PUMP_STATE (#1)  | [Bar]   | [Bar] | [Bar] | [Bar] | [Bar] | [Bar] |       |                          |       |       |
| EV_DRILL_STATE (#2) | [Bar]   | [Bar] | [Bar] | [Bar] | [Bar] | [Bar] |       |                          |       |       |
| EV_DRILL_STATE (#1) | [Bar]   | [Bar] | [Bar] | [Bar] | [Bar] | [Bar] |       |                          |       |       |
| EV_DIESEL_ENG_STATE | [Bar]   | [Bar] | [Bar] | [Bar] | [Bar] | [Bar] |       |                          |       |       |

# Achieved by...

## Technology & OEM agnostic



# Easily see through walls and around corners

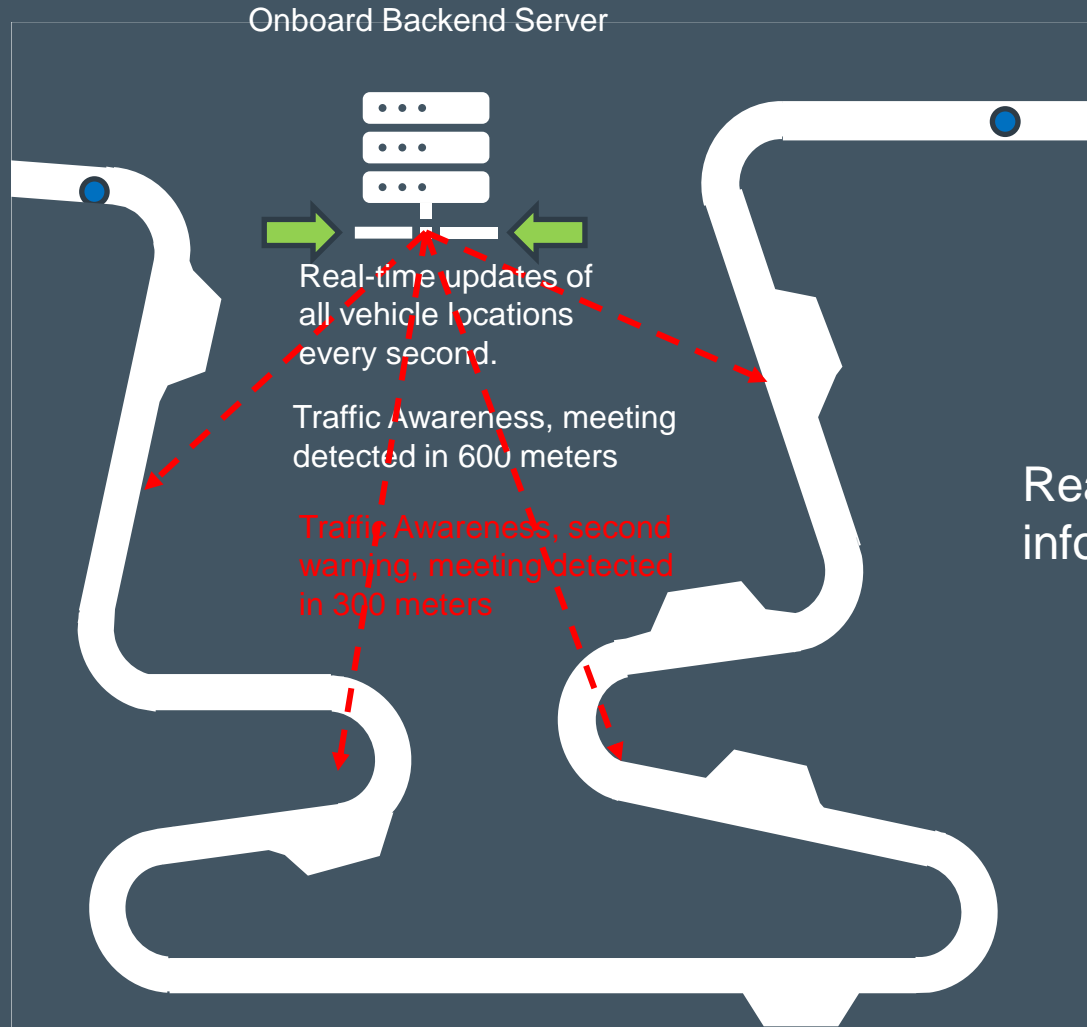
## Mobilaris Onboard™



## Patented Mobilaris Hybrid Positioning™



# Traffic Awareness



Real-time traffic information

High-accuracy location every second via Mobilaris Hybrid positioning™



# Reduces Collisions Detecting Personnel and Assets



## Proximity Detection

● Safe

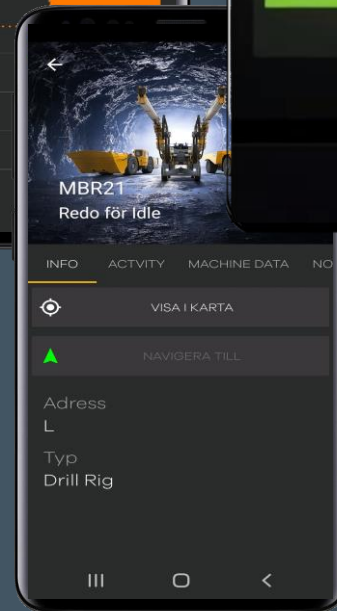
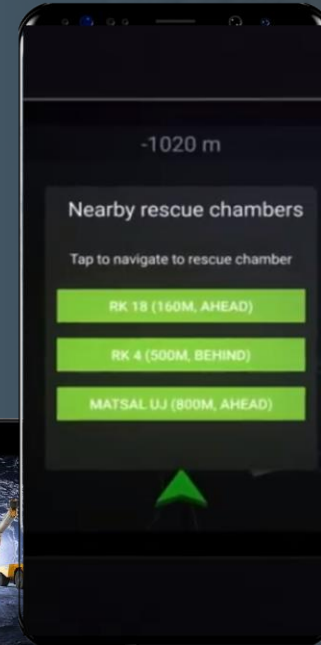
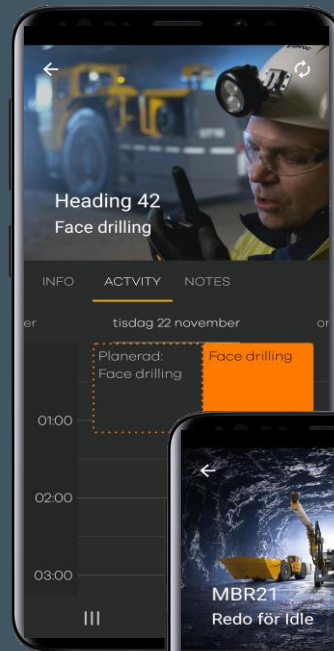
● Warning

● Danger



# Mine data at your fingertips

## Mobilaris Pocketmine™



# The sum of all fears

A fire in the mine

# Maximized Safety

## Mobilaris Emergency Support™

Time elapsed: 00:04:59

Stop Emergency

Status Overview

| Safety | Message | First Name | Last Name | Address     | Group    | Contact number | Manual Override | Goto |
|--------|---------|------------|-----------|-------------|----------|----------------|-----------------|------|
| UNSAFE | CONF    | Lorlee     | Zuk       | L           | Employee | 092321279      | Stop            |      |
| UNSAFE | CONF    | Margareta  | Cranson   | 490 parking | Employee | 095012289      | Stop            |      |
| UNSAFE | CONF    | Tami       | Dulong    | L           | Berings  | 092321279      | Stop            |      |
| UNSAFE | CONF    | Allison    | Brodbeck  | Havudamp    | Employee | 079580189      | Stop            |      |
| UNSAFE | CONF    | Margarito  | Yutzy     | L           | Employee | 0810581335     | Stop            |      |

MOBILARIS Emergency Support™

Safe (135) Unsafe (28)

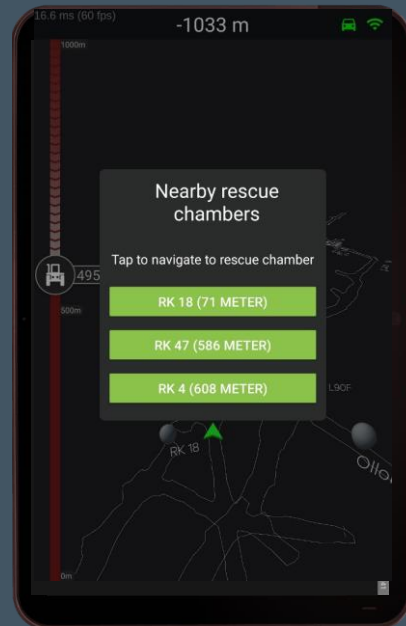
Acknowledged (36) Delivered (24) Not Delivered (103)



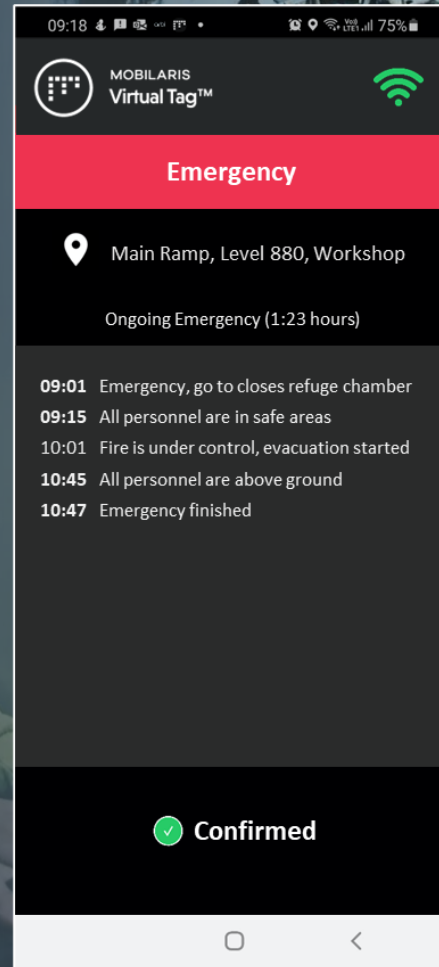
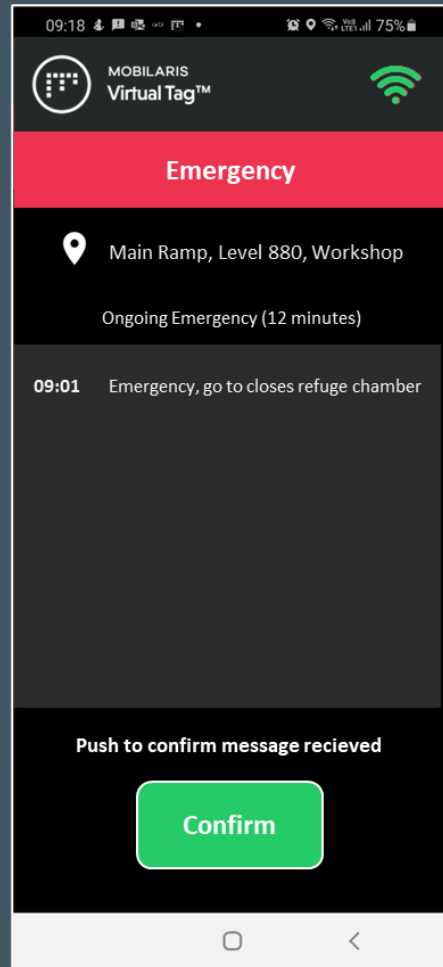
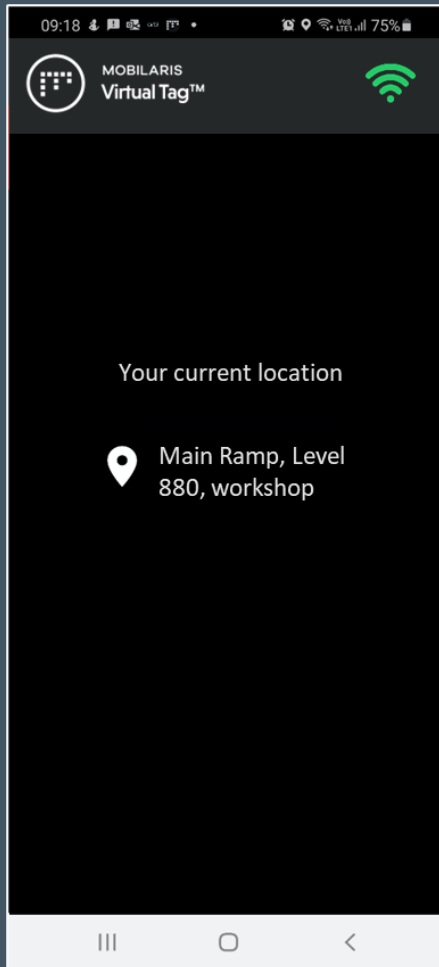


# Navigate to the nearest refuge chamber

Quick Alerts & Search using Virtual Tag in Smart Phone

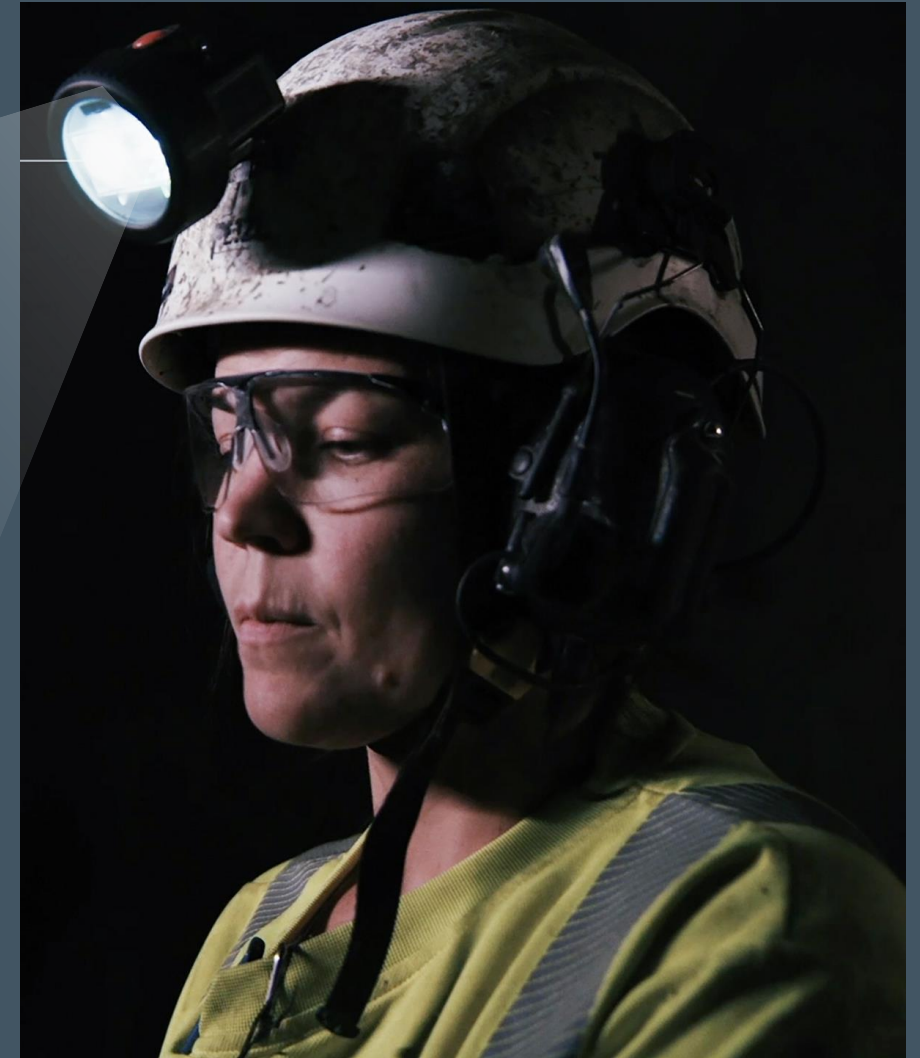


# Receive Emergency Updates On Virtual Tag in Smart Phone



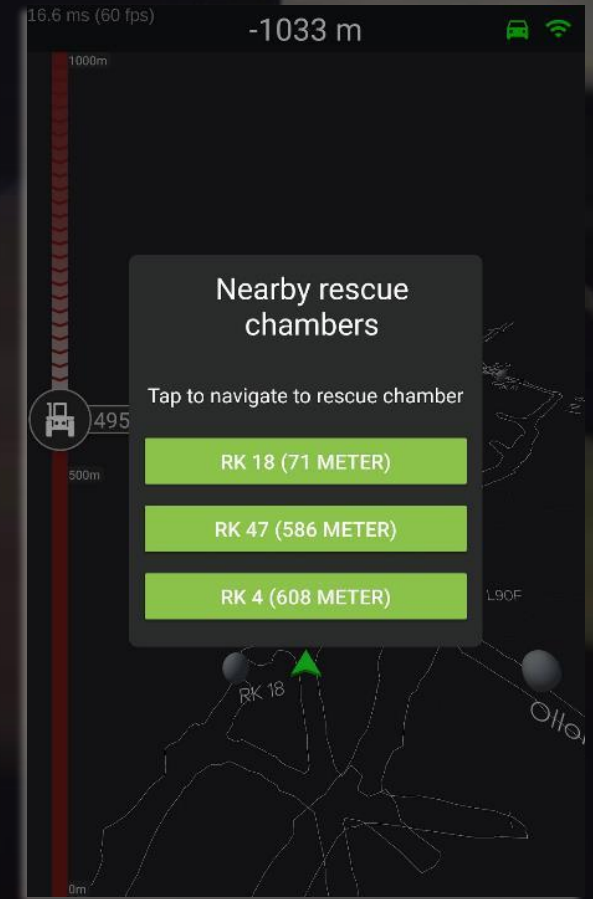
# Emergency Support

## Alerts using Personal Tags or Cap-lamp



# Helps you get to safety

Quick Alerts and Search in Onboard™



# Reduces Mine Rescue Operation by 2 hours

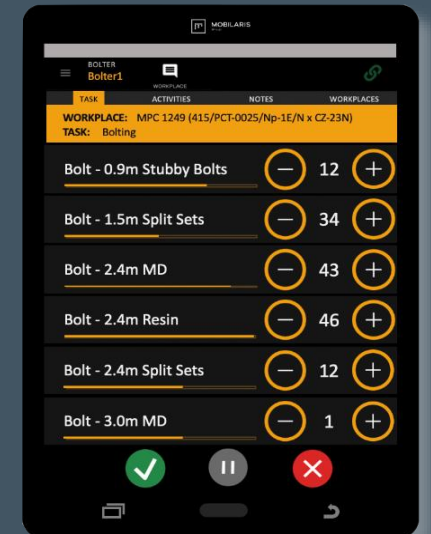
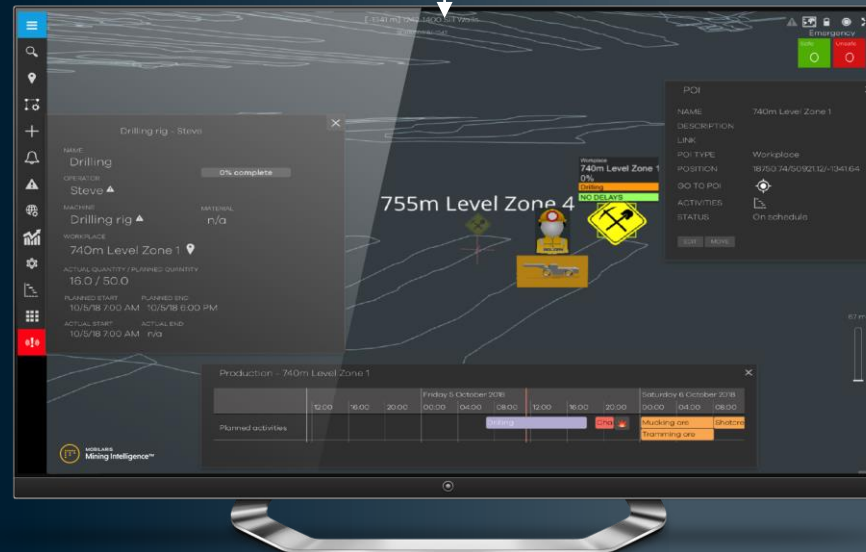
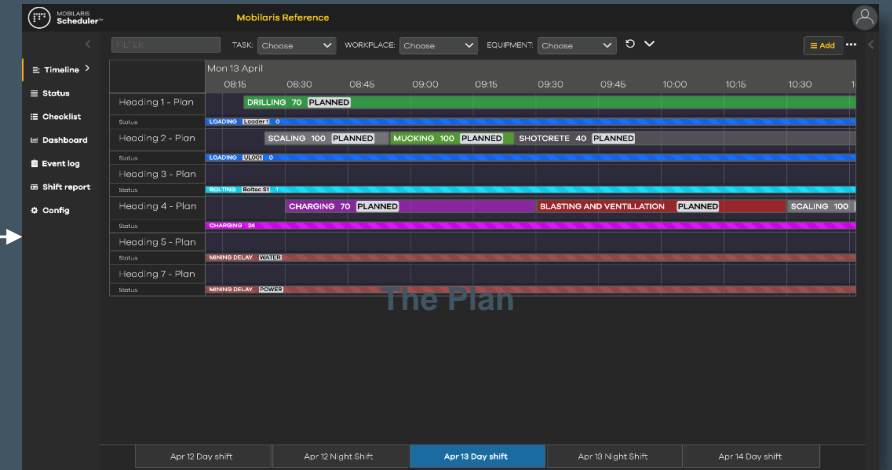
Mobilaris Emergency Support™



# Reduce Variability and Unplanned Tasks

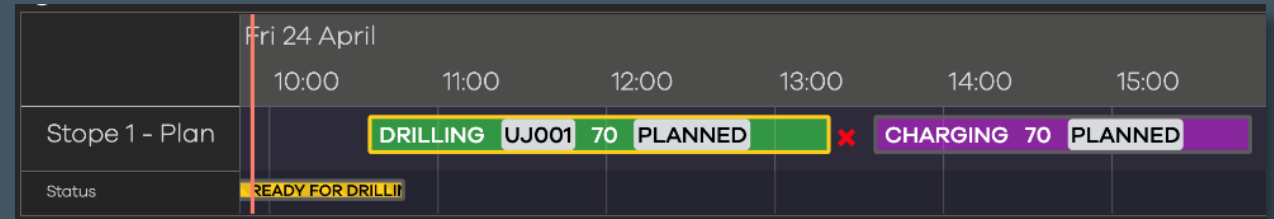
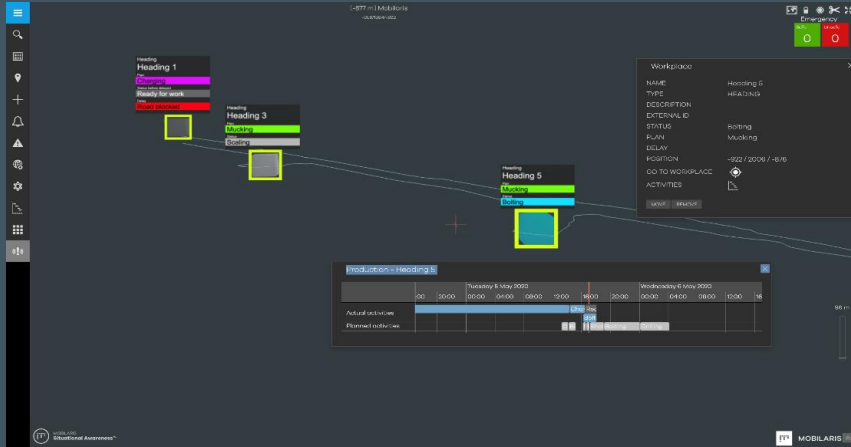


## Mobilaris Planning & Scheduling™

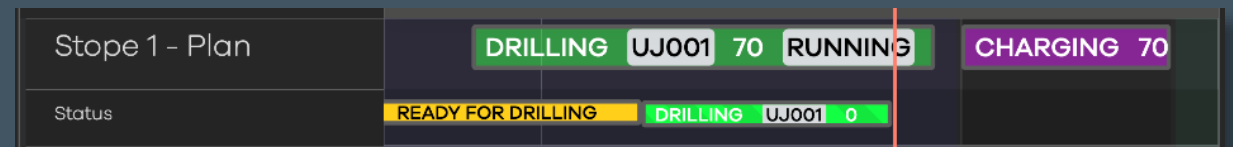


# Reduce Variability and Unplanned Tasks

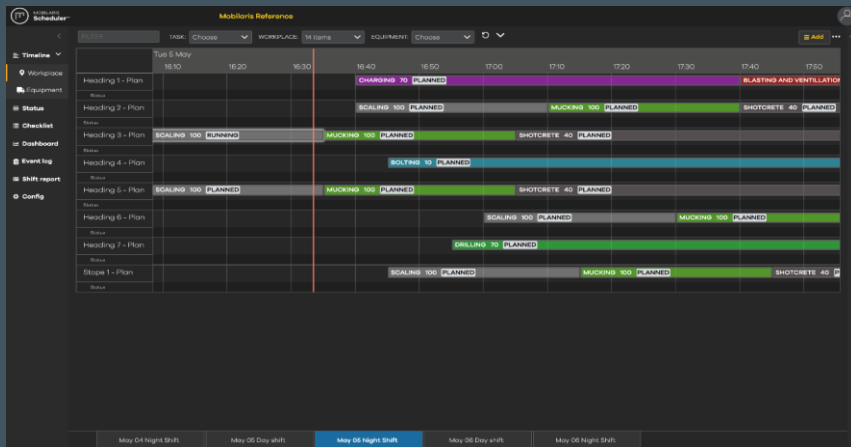
## Mobilaris Short Interval Control Planning & Scheduling™



*Planned activities, no activity is currently running*

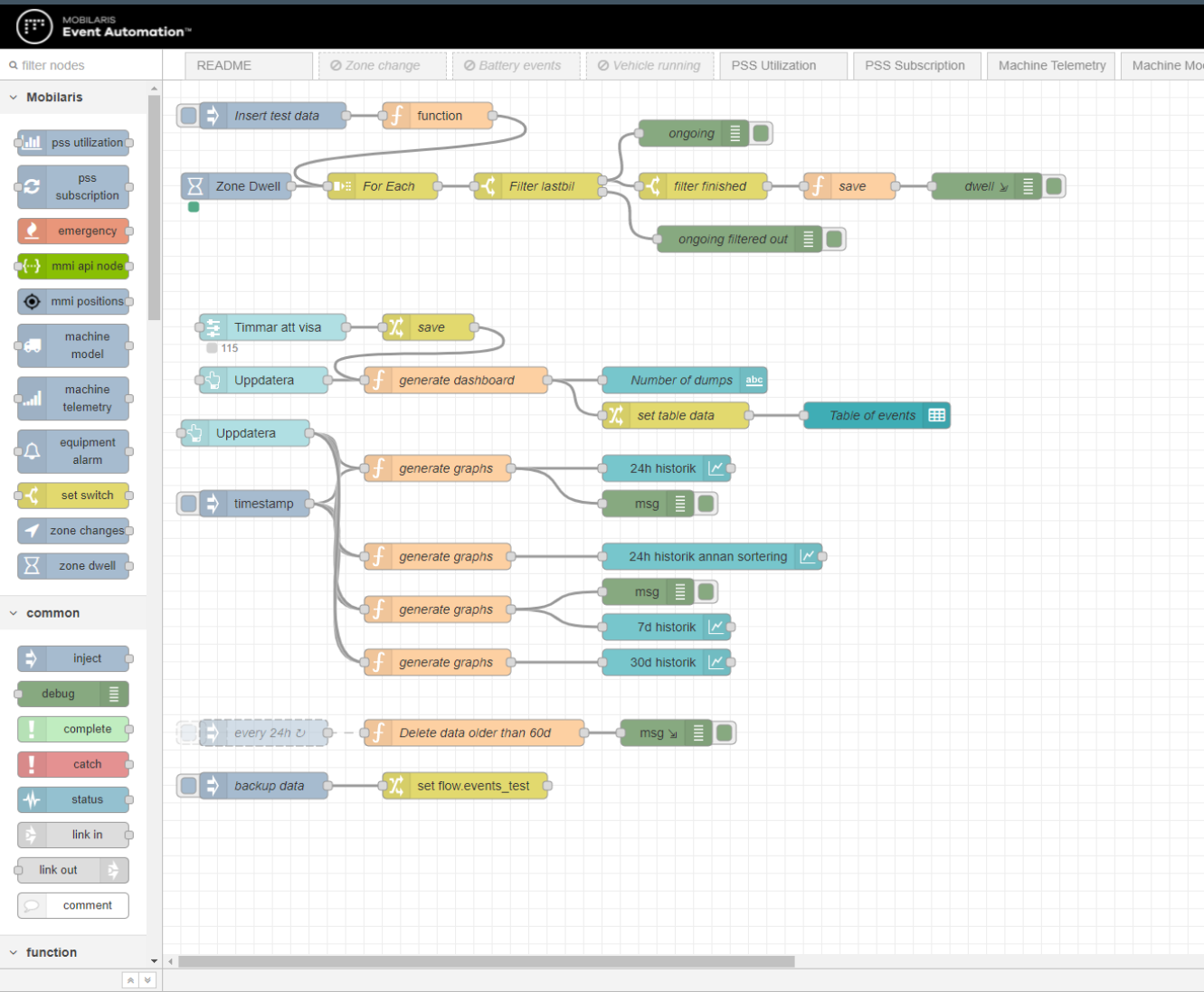


*Planned activities, drilling activity is ongoing*



# Efficient Event Set Up with Triggers

## Mobilaris Event Automation™



Truck in zone > 50 sec

Zone





100 mining companies were surveyed. **56% were setting up digitalization in the mine in the next year.**

**44% confirmed** that worker health and safety at mine sites is where they expect to see big benefits to improve the health and safety of their employees.

*Vanson Bourne, market research*

# Questions?

# United. Inspired.

Performance unites us, innovation inspires us,  
and commitment drives us to keep moving forward.

Count on Epiroc to deliver the solutions you need  
to succeed today and the technology to lead tomorrow.

**[epiroc.com](https://www.epiroc.com)**

