

FutureMINE

CALLIO

2023 - 2025

PYHÄJÄRVI, FINLAND

1.1.2023 - 31.12.2025

**BUSINESS
FINLAND**

PROJECT OBJECTIVE

RRF – Innovation infrastructures

The aim is to transform Pyhäsalmi Mine into a world's best test mine, which will impact to the entire mining industry, its digitalization and electrification, in Finland and internationally. The project will support development of future technologies by offering a proving ground to new equipment and evaluating their customer value in real life operating, durability and endurance testing. The project develops a novel test environment utilizing the unique underground infrastructure of the Pyhäsalmi Mine for the piloting needs of new technologies and solutions. The target groups are technology suppliers for all mining processes, mining service providers, and digital technology players developing novel new products and future solutions for their international end-customers.

TRANSFORMING UNDERGROUND MINING

- Finland is home to the world-leading high-tech mining players, manufacturers of mining, quarrying and material handling equipment, as well as mining service companies.
- In the future underground mines will be digitally connected although they are getting deeper. Private 5G and precise positioning are the foundational capabilities to build a fully autonomous operation where both manned and unmanned machines, as well as other assets and humans, co-exist and operate safely and effectively in the same area
- FutureMINE builds a proving ground for the piloting and testing, where the future autonomous, electric or battery operated, digital mining and tunnelling equipment operate.

OUR APPROACH FOR ADDRESSING THIS NEED?

- Traffic Management System with graphical visualization are showing and controlling all moving physical objects in a digital representation of the mine.
- Real-time connectivity 5G and new BIM-based information modelling MIM (Mine Information Model) technique enables that all relevant data is continuously collected and stored into Databases and Information Models, analyzed, screened and refined to wisdom with advanced ICT tools.
- 5G connectivity with XRTC Accelerator solution enables new real-time Training & Coaching method applied individually to each operator's learning curriculum based on their competence levels.

BENEFITS AND VALUE PROPOSITION

- Co-operation with the global mining industry and the mineral cluster, the development and innovation activities aims to improve productivity, sustainability and safety.
- Revolutionize the management of all assets in the mine especially the mixed traffic of manned and unmanned machines builds up efficiency reducing quality losses.



**"WHEN CONNECTIVITY MEETS LOCATION,
THE SAFETY MEETS PRODUCTIVITY"**

- Pyhäsalmi Mine and Callio will provide businesses with a unique, safe and stable environment – even when measured against the most stringent global standards – to leverage diverse testing activities and adaptive large-scale experiments in the future.
- Pyhäsalmi Mine has been past six decades in the forefront of mining mechanization and automation. Mining equipment is developed in close co-operation with domestic technology suppliers, all leading global players in the field.
- Enhanced mine infrastructure will provide excellent proving ground for mining industry to drive new era of sustainable underground mining long time ahead.